Author tshingombe tshitadi

Curriculum assessment:

Title

Strategic Evaluation of Advanced Engineering Systems and Pedagogical Innovation: A Professional Audit of Dr. Tshingombe Fiston Tshitadi

Overview

Dr. Tshitadi's career integrates **electrical engineering**, **security systems**, and **education policy**, with a focus on 4IR readiness, curriculum innovation, and traceable compliance systems that support socio-economic development.

Scope

- **Engineering Systems:** AC/DC theory, transformers, motors, PLCs, SCADA.
- **Security Engineering:** Access control, forensic policing logic, infrastructure integrity.
- **Education Policy:** SAQA/DHET frameworks, NATED pathways, curriculum compliance.
- **Socio-Economic Development:** Parliamentary submissions, rural energy research, youth mentorship.

Abstract

A concise audit of a trajectory from TVET foundations to doctoral systems research. Emphasis on automation, nanotechnology, AI integration, and low-code solutions (VBA UserForms) that enable signal-driven, audit-ready technical education and resilient industrial practice.

Description

- **Academic Path:** NATED N1–N3 (St Peace College) → Master's & Doctorate (Atlantic International University).
- **Technical Competence:** Power systems, motor control, PLC/SCADA, diagnostic engines, DLT for secure records.
- **Research Contributions:** Modular learning signals; autodidactic "Copilote" methodology; innovation & discovery record keeping.
- **Policy Engagement:** Submissions to South African parliamentary portfolio committees on higher education, energy, and rural development.

Keywords

Engineering Systems • Security Integrity • Curriculum Policy • 4IR • PLC • SCADA • VBA • Logigram • Nanotechnology • AI • DLT • Compliance • Audit • Socio-Economic Development

Statement — Delivery Management System

A decentralized ecosystem using **VBA UserForms** and logigram logic to manage: student registration and transcripts; engineering diagnostics and trade readiness simulations; inventory and financial compliance; automated audit sheets and bilingual credential exports.

Information & Communication Skills

- **Technical translation:** Convert engineering detail into policy and compliance language.
- **Academic writing:** Thesis, research papers, portfolios of evidence.
- **Stakeholder engagement:** Parliamentary submissions, institutional correspondence, moderation templates.

Administration & Investigation

- **Administration:** Credential mapping, version control, inventory tracking.
- **Investigation:** Forensic policing logic, CCMA/Labour Court processes, complaint tracking.
- **Governance:** Tender documentation, bid compliance, socio-economic advocacy.

Advantages & Disadvantages

Advantages: modular, audit-ready frameworks; scalable low-code tools; integration of AI and nanotech for resilience. **Disadvantages:** cross-domain complexity; interoperability and standards alignment challenges; need for stronger data governance.

Data Analysis & Visual Basic Logigram

- **Data models:** Complaint → Ruling → Rehabilitation; Credential → Export → Audit.
- **Logigram logic:** Star-Delta motor startup flows, ATM simulation, PLC diagnostics, curriculum signal mapping.
- **Automation:** VBA diagnostic engines, compliance audits, curriculum dashboards and export routines.

Audit Conclusion

The portfolio demonstrates a coherent systems approach linking engineering practice to policy impact. To scale impact, prioritize **standardized schemas**, formal **data governance**, and interoperable interfaces across SAQA/DHET/QCTO and industry partners.

Bibliography (Selected Works)

- *Application Trade Discovery: Job Education Research Methodology, Operational Autodidactic Copilote Distance* (F1000Research, 2025).
- *Career Drawing Total Programming: Analysis, Design, Investigation* (F1000Research, 2025).
- Parliamentary submissions to South African Portfolio Committees (Higher Education, Mineral Resources, Agriculture, 2023).
- Thesis: *Rural Energy, Integrity Science, and Educational Frameworks* (Atlantic International University).
- Technical portfolios: VBA UserForms for diagnostics, compliance, and curriculum management.

I can convert this profile into a polished infographic- style HTML report with interactive charts and a timeline using the thematic percentages and competency matrix already outlined; reply **Yes** to proceed or specify any data points you want included.

Career Education Didactic Report

Author: Tshingombe Tshitadi Theme: Curriculum Assessment in Trade & Engineering Education

🕮 Overview

This report examines the integration of career education materials, award certificates, diplomas, prizes, and innovative didactic systems within trade and engineering education. It emphasizes curriculum assessment, learner evaluation, and audit-ready documentation.

Scope

- Trade and engineering education at advanced levels
- Credentialing systems: certificates, diplomas, prizes
- Didactic materials: quizzes, evaluation rubrics, learner dashboards
- Innovation and invention recognition in wholesaler and technical contexts

Abstract

Career education thrives when didactic rigor, credentialing, and innovation are combined. This report explores curriculum assessment frameworks, management systems, and audit principles to ensure transparent learner recognition and sustainable educational reform.

Purpose

- To evaluate career education materials and credentialing systems
- To design audit-ready certificates and diplomas
- To integrate innovation and invention into trade wholesaler education
- To establish transparent quiz and mark evaluation systems

Keywords

Career education, didactic report, award certificate, diploma, prize, innovation, invention, trade engineering, wholesaler, quiz, evaluation, curriculum assessment, audit, management system.

Description

The report describes how career education materials can be structured into audit-ready frameworks, ensuring learners receive visible recognition through certificates, diplomas, and prizes. It highlights innovation in trade engineering and wholesaler systems.

Problematic

- Lack of standardized credentialing across trade education
- Limited recognition of innovation and invention in curricula
- Inconsistent evaluation methods and mark allocation
- Weak audit systems for compliance and transparency

Statement Report

This report asserts that career education must integrate didactic rigor, credentialing, and innovation recognition to empower learners and align with regulatory frameworks.

Management System Information

- Learner dashboards for progress tracking
- Digital credentialing systems (badges, certificates, transcripts)
- Audit-ready documentation aligned with councils and authorities

Principle Investigation

- Alignment of curriculum with regulatory standards
- Evaluation of innovation in trade wholesaler education
- Transparency in quiz and mark evaluation systems

Method Research

- Comparative analysis of credentialing frameworks
- Case studies of trade engineering education
- Surveys of learner and educator experiences
- Audit of management systems for compliance

✓ Advantages

- Transparent credentialing and recognition
- Motivation through prizes and innovation awards
- Audit-ready documentation for compliance
- Learner empowerment via gamified dashboards

✗ Disadvantages

- High administrative burden for audit systems
- Risk of over-standardization limiting creativity
- Resource-intensive management systems

Management System Information (Expanded)

- Integration of LMS with credentialing dashboards
- Automated quiz banks and evaluation rubrics
- Secure audit trails for certificates and diplomas

Conclusion

Career education in trade and engineering requires a balance of didactic rigor, credentialing, and innovation recognition. Audit-ready systems ensure transparency, while prizes and certificates motivate learners to achieve and invent.

Audit

- Verification of certificate and diploma authenticity
- Compliance with national and international councils
- Continuous monitoring of learner progress and evaluation systems

Bibliographic (Sample References)

- Council on Higher Education (CHE) guidelines
- Engineering Council of South Africa (ECSA) standards
- UNESCO TVET frameworks
- International Journal of Technical Education & Training

This structure gives you a **complete academic-style report** that can be adapted into curriculum assessment documentation, certificate design, or audit frameworks.

Would you like me to **expand this into a polished certificate/diploma template** (with placeholders for learner details, marks, and achievements), or into a **sample quiz bank with evaluation rubrics** to demonstrate the assessment system? Both would make this report more tangible.

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ourse or Thesis Title	Section/Module	Topics Covered	Learning Objectives	Assessment Criteria	Prerequisite Requirements	Target Outcome	Source
National N Diploma: Engineering Studies (Electrical)	N1–N6 / Work Experience (WE1 - WE28)	Electrical Trade Theory, Electrotechnology, Industrial Electronics, Mathematics, Logic Systems, Power Machines, Control Systems, High Voltage Installations, PLCs, Manual soldering, Technical drawing, OH&S principles.	Provide technical, theoretical, and practical knowledge required for electrical engineering roles; enable students to define, design, and innovate power systems; adopt occupational values and safety standards.	ICASS (40%), External Summative Assessment (60%); Logbook evidence of 10-28 practical activities (WA codes) verified by supervisor; Trade Test; 18–24 months practical experience.	N1 entrance (Grade 9) or N3 trade test/relevant school leaving certificates; N4-N6 requires theoretical completion.	National N Diploma (NQF Level 6); Artisan Status; Professional qualification for manufacturing and maintenance.	[1-12]
Doctorate in Specialist Engineering Infrastructure: Electrical	13, 30.1 - 31.9, Thesis/Dissertation	Power System Analysis (Fault, flow, stability), High-voltage engineering, Smart Grids, IoT,	Lead infrastructure transformation; equip students with advanced	Dissertation complying with accepted norms; Oral presentations; Assessment of real-world	Master's Degree in Electrical Engineering; N6 / Advanced Engineering Science;	Doctor of Engineering (PhD) / Doctorate in Specialist Engineering (NQF Level 10);	[4, 13-18]

Engineering		Renewable Energy Integration, Energy Policy, Advanced Project Management.	skills for the design, implementation, and management of electrical infrastructure projects; contribute to original knowledge production.	application models and equipment specifications; Thesis of approx. 7,500 words.	SAQA Evaluation.	Strategic leadership in infrastructure.	
Engineering Electrical Trade Theory & Practical	N1-N3 / Phase 1-2	Safety precautions, DC/AC theory, Wiring systems, Magnetism, Transformers, RLC circuits, Logic gates, Protective relay setup, Control Panel Wiring (Star-Delta, Forward/Reverse).	Foundational training for electrical apprenticeship; mastery of direct current principles and safety standards (SANS 10142-1); bridge workshop and work environment gaps.	3-hour closed-book exam (pass mark 40-70%); ICASS (40%); Trade Test completion; Accuracy in relay calibration; Insulation resistance testing (>1 MΩ).	N1-N3 pathway registration; Grade 9 or equivalent; Required safety attire (Helmet, Safety Shoes).	N1-N3 National Certificates; Trade Test Readiness; Artisan Status; National Trade Certificate (NTC).	[2, 4, 5, 11, 13, 15, 16, 19-25]
Master of Science in Electrical Engineering (MSEE)	2.1, 3.1, Thesis	Power system stability, Electrostatics, Electrodynamics, Electromagnetic transformation, Quantum mechanics, Relativity of charge celerity, Industrial electronics.	Enable students to define and design fundamental power systems; improve industrial efficiency through research; develop graduate-level	Thesis (2500+ words) and Publication; Discussion logs; Experimental panel trade manipulation; Videoconference evaluation.	Bachelor's degree in Electrical Engineering; Academic record evaluation.	Master of Science / Master's Degree in Electrical Engineering.	[2, 26-28]

			research projects.				
Advanced Legal Studies in Public Administration and Safety	11.1 - 11.9	Public Law, Constitutional Law, Administrative Law, Public Safety Frameworks, Ethics, Human Rights, Crisis Management, Social Justice.	Provide comprehensive understanding of legal frameworks underpinning public administration and safety mechanisms; prepare professionals to navigate complex legal landscapes.	Case studies analysis; Legal briefs; Policy analysis; Evaluation of contingency planning and emergency response protocols.	Master's level enrollment/ student status.	Master's Degree in Public Administration and Safety; Public Policy Analyst / Regulatory Compliance Officer.	[2, 9, 14, 15, 17, 18, 29]
Drawing Analyse Design System	1.1, Full Scope	Engineering drawings, Schematic interpretation, Fault diagnostics, Algorigram, Compliance modeling, Rural infrastructure.	Support rural infrastructure development through modular curriculum design and policy-aligned assessment strategies.	SAQA exit-level outcomes; Mapping WA codes to tasks; LMS analytics; Calibration logs and compliance checklists.	Technical mastery in engineering drawing and systems design; alignment with SAQA/NQF descriptors.	Credential-ready portfolio; WA-coded workplace competencies; LMS module or educator guide.	[14, 15, 29]
AI Fluency Program	Module 1 (Chapters 1.01 - 1.05)	AI Foundations, Turing Test, Chinese Room Argument, Machine Learning types (Supervised, Unsupervised, Reinforcement), Ethics.	Gain essential AI skills; understand the difference between programmed rules and true understanding;	Introduction to AI Quiz score; Course progress tracking.	No technical experience required.	6 Certifications recognized by Microsoft; Certification of Knowledge Badge.	[6, 13, 20, 21]

			demystify technology.				
Career Discovery and Mentoring Framework for TVET	Chapters 1-4	Career Expo Models, Workshop-Based Learning, Workplace Simulation, Subject Integration, Safety Protocols, Labour Law, Job Role Mapping.	Guide educators in aligning learning outcomes with trade readiness; embed career orientation into TVET curricula; ensure policy compliance.	Mapping modules to SAQA/NQF descriptors; Evaluating mentoring impact via learner progression; Assessor/Moderator training for risk.	Institutional buy-in; Educator training in portfolio systems.	TVET Curriculum Reform; Credentialed trade outcomes; Digital portfolio creation.	[13, 20, 21]
Power Systems Engineering	Not in source / 61	Generators, transformers, transmission lines, load flow analysis, stability, protection, smart grids, renewable integration.	Develop advanced knowledge of power generation, transmission, and distribution; analyze and design reliable, efficient systems.	Load flow and fault analysis using MATLAB/Simulink; Protection scheme design; Smart grid simulations; Case studies.	Aligns with NRF/ECSA outcomes.	Expertise in sustainable energy systems; Capability to model power distribution.	[9, 17]
Advanced Communication Systems	Not in source / 60	Digital and wireless communication, RF engineering, Network security, OFDM, MIMO, 5G, IoT, Detection and estimation.	Conceptualize and design advanced communication systems; analyze and prototype secure networks; select modern coding techniques.	Coursework; Laboratory experiments; Dissertation; Seminars; Comprehensive viva.	Aligns with NRF/SARAO and national research priorities.	Specialization in telecommunications and data science infrastructure.	[9, 17]
Machine	Not in	Supervised/uns	Apply ML	Implementat	Aligns with	Integration	[9,

Learning in Electrical Engineering	source / 64	upervised learning, Neural networks (CNN, RNN, GAN), Reinforcement learning, ML for communication and power systems.	and deep learning in electrical engineering; design algorithms for spectrum access and resource allocation; optimize efficiency.	ion of ML algorithms (Python, TensorFlow); Simulation of ML in engineering systems; Case studies.	NRF/SARAO and emerging research priorities.	of AI into engineering research and industry.	17]
Control Systems Design	Not in source / 59	Modeling (transfer function, state-space), Stability analysis, Sensitivity, Robust control, Observer design, Optimal control (LQR, Kalman).	Provide advanced understanding of linear and modern control theory; design performance-oriented controllers under practical constraints.	Regular homework; MATLAB/Simulink simulations; Hardware-in-the-loop (HIL) validation; Laboratory experiments.	Aligns with NRF/SARAO and ECSA requirements.	Professional engineering training; Ability to design feedback and control systems.	[9, 17]
VLSI (Very Large Scale Integration) Design	Not in source / 63	Device modeling, CMOS analog/digital design, Physical design automation, Mixed-signal circuits, FPGA design, Memory architectures.	Design integrated circuits using computational methods; develop skills for multidisciplinary VLSI challenges.	CMOS circuit design and simulation (EDA tools); HDL modeling; FPGA implementation; Dissertation.	Aligns with NRF/SARAO and industry standards.	Professional skills for chip-level design and fabrication.	[9, 17]
Renewable Energy Systems	Not in source / 62	Solar, wind, hydro, geothermal, bioenergy; Energy storage; Grid integration;	Provide applied knowledge of renewable technologies; address	Modeling and simulation of PV/wind systems; Resource assessment;	Aligns with NRF/SARAO and national sustainability goals.	Professional readiness for the renewable energy sector.	[9, 17]

		Resource assessment.	sustainability, policy, and system planning.	Field visits; Case studies.			
Advanced Electromagnetic Theory	EMZ2025-00 / 57	Maxwell's equations, Wave propagation, Radiation and scattering, Waveguides, Photonic crystals, Plasma dynamics.	Provide graduate-level understanding of classical and modern electromagnetic theory.	Problem sets; Computational simulations (HFSS); Laboratory experiments on waveguides and antennas; 100% marks activity.	Graduate-level standing; Aligned with NRF/SARAO recommendations.	Mastery of field theory and wave propagation; Doctorate research readiness.	[9, 17, 30]
Master's in Artificial General Intelligence and Social Sciences	1.1 - 1.3, 5.1	AGI vs Narrow AI, Human Cognition, Ethical Considerations, Economic Implications, Public Policy, Social Impact, Human-Machine Collaboration.	Prepare students to evaluate and influence the integration of AGI in societal contexts; analyze ethical and moral implications.	Examination project; Thesis-driven diagnostics.	Not in source	Master's Degree.	[2, 3, 19, 31]
Information Management System (IMS) Modular Framework	Kfrm1, 2, 6	Registration (ID, Cellphone), Address capture, Security scanner, Biometric validation.	Implement secure registration and biometric validation; ensure user credential handling and audit-readiness.	Binary success indicators (0/1); Biometric flag verification; Data integrity checks.	VB runtime support; National curriculum standards.	Secure user registration and traceability; Audit-ready educational data.	[1]
Digital Signal	Not in source / 58	Discrete-time signals,	Understand advanced	Design and implementati	Aligns with NRF/SAR	Competency in	[9, 17]

Processing		Advanced transforms (DCT, KLT, wavelets), Adaptive filtering (LMS, RLS, Kalman), Multirate processing.	DSP transforms for 1-D and 2-D signals; implement adaptive filtering; apply in telecommunications and electronics.	on of adaptive filters; MATLAB/Simulink exercises; Real-time DSP processor labs.	AO and ECSA outcomes.	analyzing and processing discrete signals.	
Web-Based Crime Management System (Thesis)	Chapter One - Four	Client-server architecture, Database management, OOA, UML (Use Case, Sequence, Class diagrams), PHP, MySQL.	Develop an online application for reporting and managing crime records for a police station.	Functionality of crime module; Data security; Retrieval speed; Successful deployment in working environment.	Knowledge of PHP, HTML, JavaScript, CSS, and MySQL; understanding of police record management.	Automated Web-Based Crime Management System.	[14]
Diploma in Policing / Resolving of Crime	First Semester / Core	Criminal Investigation, Administrative skills, Information management, Basic Law, Behavioural Science, Evidence Handling.	Develop skills necessary for performing policing functions; equip learners with legal, tactical, and ethical competencies.	Practical Assessment (70%) and Theory Assessment (30%); Integrated Assessment (Written + Practical).	NQF Level 6.	National Diploma in Policing (NQF Level 6); Diploma (Detective Service Division).	[6, 16, 22]
Masters in Vertical Farming and Urban Agriculture	7.1 - 7.10	Synthetic Biology, DNA Sequencing, Genetic Engineering, GMOs, Biotechnology, Sustainability, Urban farming	Prepare students to innovate in sustainable food production leveraging synthetic biology and	Evaluation of environmental and economic benefits; Practical design of urban	Not in source	Master's Degree.	[3, 14, 29]

		design.	biotechnology.	farming systems.			
Mathematics N4 & N6	Modules 1-5	Determinants, Complex Numbers, Trigonometry, Calculus (Differentiation, Integration), Differential Equations.	Equip students with mathematical skills for solving engineering-related problems; solve advanced industrial mathematical problems.	3-hour closed-book exam (pass mark 40%); ICASS assignments.	Grade 12 Pure Math or N3/N5 Mathematics pass.	Foundation for National Diploma; Engineering Industry Qualification.	[3, 23]
Paralegal & Legal Practice Curriculum	Legal Foundations	RSA Law Sources, Court Structure, Constitution, Property Law, Criminal Law, Wills & Estates, Civil Litigation.	Administer case files; apply ethics and human rights law; manage estate administration workflows.	Liquidation & Distribution Account accuracy; Legal brief preparation; Case management simulation.	Not in source	Paralegal certification; Legal practitioner competence.	[13, 20, 21]
Masters in Supply Chain Management and Traceability	3.1	Software engineering, Blockchain, IoT, Supply chain efficiency.	Ensure seamless traceability of goods from origin to consumer leveraging advanced technologies.	Information evaluation; Summaries and conclusions.	Software engineering basics.	Master's degree.	[19]
Master's in Urban Water Supply and Waste Management	8.1 - 8.9	Urban Water Supply, Sewerage Systems, Waste Management, Remediation Technologies, GIS and	Equip graduates to address population growth and climate change challenges in water and	Interdisciplinary collaboration assessment; Data-driven decision making.	Not in source	Master's Degree.	[14, 29]

		Remote Sensing.	waste sectors.				
Electrotechnics N6	Modules 1-5	DC Machines, AC Theory, Transformers, AC Machines, Generation & Supply of AC Power.	Equip learners with advanced theoretical and practical skills for the electrical industry.	2 formal tests + final exam (40% ICASS + 60% Exam).	Passed Electrotechnics N5.	National N Certificate; Promotion toward National N Diploma.	[4, 16]
BTS Électrotechnique	RNCP41007BC01	Smart electrical installations, Digital technologies, Energy efficiency, Cyber-security.	Design, optimize and maintain smart electrical installations from production to end-use.	Continuous assessment (CCF) or final exams; Accessible through VAE.	Level 4 qualification (Baccalaureate).	Brevet de Technicien Supérieur (BTS) / Level 5 Qualification.	[4]
Master's in Distributed-Ledger Technology Applications	21.1 - 21.9	DLT concepts, Blockchain for Credentialing, Smart Contracts, DLT-based LMS, Data Security.	Innovate within the educational sector using advanced DLT methodologies for secure dissemination.	Analysis of DLT implementations and evaluation of security protocols.	Graduate level standing.	Expertise in applying blockchain/ DLT to educational systems.	[15]
Integrated Trade Education and Research Deployment	1	Vocational education, Actuarial modeling, IT systems, Traffic safety, Robotics, SQL, Psychology.	Develop a modular, multi-domain guide integrating vocational education, actuarial analysis, and IT deployment.	KPIs: 100% completion rate; Collision frequency metrics; LMS completion %; Audit traceability.	Alison LMS records; SCQF/SAQA unit standards.	Credential-linked system; Vocational excellence certificate.	[32]

National 4 & 5 Skills for Work: Engineering / Energy	Mandatory Units	Mechanical Engineering, Electrical/Electronic, Fabrication, Energy systems, Wind/Solar Hot Water, Oil/Gas Extraction.	Prepare learners for further education or employment; focus on practical engineering skills and career opportunities.	Certification of Critical Thinking and Working with Others at SCQF level 4; Tolerance ±3mm.	SCQF level 3 numeracy/literacy or center discretion.	SCQF Credit Points (24); Progression to NC or Modern Apprenticeships.	[23]
SAPS Career Opportunity - Detective Officer	Investigation Team B	Economic Crimes, Case Docket Preparation, Crime Administration System (CAS).	Supervise and control economic crime investigations.	Vetting, Security screening, Fingerprint verification.	NQF Level 6 + 2 years experience; Grade 12; Driver's Licence.	Detective Officer: Economic Crimes designation.	[20]
Official ISC2 Certified in Cybersecurity (CC)	Chapters 1-5	Security Principles, Incident Response, Business Continuity, Access Controls, Network Security.	Understand security concepts of information assurance and risk management process.	Certification Exam Outline based on five domains.	Not in source	Certified in Cybersecurity (CC) Certification.	[3]
Master's in Telemedicine and Remote Healthcare Production	5.3	Scriptwriting, Audio/visual recording, Broadcasting, Medical Narrative and Storytelling.	Equip students with skills to produce impactful media content in telemedicine.	Successful production of live broadcasts; Crafting of patient testimonials and case studies.	Master's level student status.	Proficiency in telemedicine media production.	[15]
Masters in Immutable Data Storage Solutions for Web Design	7.3	Blockchain, Web application security, Encryption, Database systems,	Explore intersection of web design and blockchain; develop resilient	Not in source	Professional seeking to leverage emerging technologies.	Master of Engineering Systems / Web Design.	[17]

		Dynamic web design.	digital systems.				
Metallurgy in Oil and Gas Production	12.4	Corrosion Mechanisms and Prevention, Sulfide stress cracking, Chloride stress corrosion.	Explore common corrosion mechanisms and learn prevention methods in oil and gas environments.	Not in source	Not in source	Specialist knowledge in material selection/corrosion prevention.	[29]
Schneider Home Certification	Not in source	Schneider Inverter/Pulse Backup installation, eSetup App commissioning, Installer Portal.	Equip installers with skills to successfully deploy Schneider Home energy management systems.	25-point Certification Test with 80% passing score.	Not in source	Schneider Home Certification (3 NABCEP CEU credits).	[3]

[1] data programm wizar d total career project ip license certificate copy license copyrith legal depo arch authentica Request an intellectual property (IP) licence _ Metropolitan Police.pdf
[2] thesi project book , final engineerin tshingombe , time table allocation job cost-1.pdf
[3] 278582_thesi project book , final engineerin tshingombe , time table allocation job cost.docx
[4] careeer 18.1 drawig material didactic autopedagogie panel teach learning copilote.docx
[5] careeer 23 ,disciplin didact education , assessment education , educ theory portofolio, educat investigation , experimental , education engineering system master , edcatio publish ,educat neural ,pc.docx
[6] Career experience discovery tshingombe tshitadi.pdf
[7] trade certificate license marks electrical theoretical practic form tshing.pdf
[8] Career9f discovery job trade memo lecture learn note.pdf
[9] Career Education Didactic Report.docx
[10] careee 30 tshingombe.pdf2.pdf
[11] career 29 education materiaux didactic report award certificate prize archfile assessent.docx
[12] Career Education Didactic Report.docx
[13] Career11tf discovery job trade memo lecture learn note(2).pdf
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[15] Doc12 design analyse investigate engineering tshingombe(6).pdf
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[17] Career Education Didactic Report.pdf
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[31] career3 discovery overview RNF AIU NSF learning journeyand nated (1).pdf
[32] careeer 17 drawig material didactic autopedagogie panel teach learning copilote.docx

Based on 44 sources

Project or Module Name	Description	Primary Function	Standards and Regulatory Compliance	Key Technologies and Tools	Industrial or Educational Sector	Credential or Outcome Artifact	Status or Metric	Source
Operation GENIAC / S.E.E.E.I.S.U.A	A comprehensive transdisciplinary framework (Strategic, Economic, Environmental, Engineering, Institutional, Social, Utility, and Asset) integrating engineering theory,	Research policy, technical oversight, asset digitization, and risk-based maintenance. Automates configuration generation, diploma validation, and learner engineering competitions using generative intelligence.	SAQA, NQF Level 6, PSIRA, MIL-STD-881E/883D/1394, SABS, SANS 10142-1, OSHA, LRA, QCTO, DHET, DBE, UNESCO, ISO 37301, POPIA.	VBA (Visual Basic), C#, MATLAB, Simulink, Azure ML, Python, SCADA, IoT, Robotics, Nextflow, GitLab CI/CD, Agentforce AI.	Energy, Electrical Engineering, Defense, TVET Education, and Rural Development.	National N Diploma, Doctorate in Electrical Engineering, Digital Portfolios (PoE), Professional Badges, and State Asset Information Management	360 credits; 80% pass marks for trade tests; targeting 98% quality rate and 87% machine availability; R50bn budget forecast.	[1-8]

	educational technology, and regulatory policy. Designed to digitize South Africa's infrastructure assets and synchronize education with industrial needs (Eskom, City Power) for rural development.					System (SAIMS).		
Drawing Analyse Design System	A transdisciplinary framework integrating engineering drawing principles with educational technology to support rural infrastructure and modular curriculu	Diagnostic modeling, fault analysis, and schematic interpretation for workplace competencies.	SAQA, NQF Alignment, WA Codes, CC BY License.	LMS integration, logigrammes, algorigrammes, visual logic systems.	Engineering and Education Technology.	Credential-ready portfolios, assessment rubrics, LMS modules, and educator guides.	12.88 MB file size; 12 views; 1 download.	[9, 10]

	m design.							
Engineering Electrical Master Module	Advanced curriculum and research focusing on power systems stability, electromagnetism, and industrial electronics designed by Tshingombe Tshitadi.	Instruction on electrostatics, electrodynamics, quantum mechanics, and design of fundamental power systems.	SAQA ID 90674, NQF Level 6, IEC, SI Standards, UNESCO TVET Frameworks.	MATLAB, Simulink, 3D multidisciplinary modeling tools, VBA.	Higher Education and Electrical Engineering.	Master's Degree in Electrical Engineering, Master Skills Development Certificate.	360 total credits; assessment weighting: 40% classwork/tests, 60% final exams.	[2, 4, 5, 11, 12]
National N Diploma: Electrical Engineering (Mechanical Specialization)	A structured program providing technical, theoretical, and practical knowledge in electrical systems and heavy equipment maintenance.	Equip students with skills for manufacturing, maintenance, system design, and fluid dynamics analysis.	SAQA ID: 90674, NQF Level 6, NEC, IEC.	AutoCAD Electrical, EPLAN, PLCs, CNC machines, Pneumatic/ Hydraulic systems.	Technical Education and Mechanical Engineering.	National N Diploma.	360 credits; minimum 10 practical activities required for logbook verification.	[2, 3]
Specialist Engineering Infrastructure: Electrical	Advanced research and coursework focusing on the design, implementation, and	Power flow analysis, fault analysis, stability assessment, and infrastructure design managemen	NQF Level 10 (Doctorate level), MIL-STD, IEC 60364, SANS 10142.	MATLAB, Simulink, IoT, Smart Grid technologies.	Electrical Infrastructure.	Doctoral Thesis and Credential.	360 credits total; weighting: 40% ICASS, 60% Exam.	[9, 10]

	management of electrical infrastructure.	t.					
Diagnostic Modeling and Fault Analysis	Module focused on identifying and addressing irregularities in electrical materials and system faults.	Diagnostic modeling and fault analysis of motors, generators, and transformers.	SABS, SANS 10142-1, IEC 60847-3, VDE 0660.	MATLAB, Simulink, Oscilloscope, Multimeter, PLC (Modicon).	Industrial Electronics and Power Systems.	Technical reports, certificate of competency, and experiential log books.	Efficiency measured as n=W2/W1; fault detection and propagation monitoring.	[1]
Rural Electrification and Renewable Energy	Supply of electricity to rural households using grid and off-grid solutions (Solar PV, Wind, Mini-hydropower).	Providing sustainable energy solutions and bridging the gap between theory and rural infrastructure implementation.	Department of Energy RSA, Eskom standards, NEMA, ANSI, NSF CAREER guidelines.	Solar PV, Wind turbines, Smart Grids, Edge Computing, Azure Synapse, Satellite mapping.	Energy and Infrastructure Sector.	Diploma in Solar Energy Engineering, valuable meter certificates, curriculum modules.	Targeting 3.4 million households; $4,000,000 total budget; 15,459 ZAR per connection.	[1, 4]
Madinda Utilities AMI Rollout	National rollout of Advanced Metering Infrastructure (AMI) to modernize utility management and support revenue	Manufacturing and deployment of tamper-proof smart meters with real-time diagnostics.	DLMS/COSEM (IEC 62056-5-3), NRS 049-2:2024, AFSEC, SABS.	4G/LTE, NB-IoT, G3-PLC, RFID Tagging, Security Suite 1.	Energy and Utility Services.	IDIS Package 2 Interoperability Certification.	1,200 direct jobs in Phase 1; over $126 million in grant funding committed.	[6]

	protection.							
Educational Technology and Management Information Systems (MIS)	Creation of interactive self-assessment tests and management systems for student data and career guidance.	Automating student record keeping, stationery management, and formative/summative assessment.	SAQA, NQF Act 57 of 2009, Umalusi, ISO 37301.	Visual Studio 2008, VB.net, Microsoft Access, SQL, Moodle, WebCT.	Educational Technology and Vocational Training.	Academic transcripts, digital certificates, and e-Portfolios.	248 credits; 80% attendance required per term.	[1]
Industrial Electronics N4-N6 (Signal Processing)	Curriculum covering alternating current theory, power supplies, amplifiers, signal processing, and smoothing.	Analyze signal processing using mathematical integration (RC Integrators) and derivation (RC Differentiators).	NATED, SAQA NQF Level 5, ICASS.	MATLAB, Simulink, Operational Amplifiers, Oscilloscopes, Transducers.	Industrial Engineering and Automation.	Component of National N Diploma; N5 Industrial Electronics Qualification.	100-point evaluation scale; weights include 15% for AC Theory and 15% for Amplifiers.	[2, 3]
VBA-Controlled Diagnostic System	A modular system spanning Excel and Word for energy project modeling and experimental workflows.	Signal modeling, energy metering simulation, and form control automation.	NQF/WA-aligned artifact standards.	VBA, Excel Macros, Python (capture_signal.py).	Energy and Electrical Projects.	NQF Level 5 Metering System Energy Profile.	Simulation executed successfully.	[9]
Smart Grid	Integratio	Predictive	Industry	AI	Power	Didactic	100%.	[9]

Enhanced with Artificial Intelligence (DL SGWD-AI)	n of traditional electrical networks with AI-driven data analytics for intelligent distributio n.	load managemen t, fault isolation, and real-time consumptio n tracking.	4.0, IEEE standards.	modules, MODBUS RTU, RS485, SCADA-WEB platforms.	Engineerin g.	laborato ry certificat ion.		
Robotic Process Automation (RPA) in Electrochem ical Engineering	Integratio n of automatio n technolog ies to enhance battery manufactu ring and fuel cell productio n.	Automating electrochem ical process controls and data collection.	Not in source.	UiPath, Automation Anywhere, Blue Prism, Azure ML.	Manufactur ing and Electroche mical Engineerin g.	Automat ed control systems docume ntation.	0.85 efficienc y assumpti on in calculati ons.	[9, 10]
Automated Teller Machine (ATM) System	A web-based and VB.NET applicatio n for managing bank transactio ns and crime records managem ent.	Online complainin g, computeriz ed managemen t of records, and secure transaction processing.	ISO/IEC 27001.	VB.NET, MS Access, SQL Server.	Banking and Law Enforceme nt.	Web-Based Crime Manage ment System (WBCM S) prototyp e.	155 MPS (switch performa nce); 170+ police members employe d.	[10]
E-Portfolio Managemen t System (EPMS)	Adoption of electronic portfolio systems in technical training using the	Managing educational content, assessments , and digital artifacts for employer performanc	Governm ent regulation s for cloud computin g.	Cloud Computing, Big Data Infrastructu re, SPSS.	Educational Technology / TVET.	Digital Portfolio of Evidenc e (PoE).	43% of the variance in system adoption found.	[4]

	Technology Acceptance Model (TAM).	e tracking.						
Azure ML Signal Diagnostic Pipeline	A cloud-based experimentation framework for signal modeling and predictive diagnostics.	Model training, backtest pipeline execution, and real-time endpoint deployment.	ISO 1999.	Azure Machine Learning, Kubernetes, Python (Scipy, Numpy), GitHub CI/CD.	Telecommunications and Industrial Automation.	LMS Module Outputs, AIU Thesis Artifacts.	1000 samples per signal capture.	[10]
Unified Career Ledger	A proposed automated system architecture for consolidating academic, technical, and compliance records.	Automating the validation of certifications (SAPS, PSIRA) and mapping engineering signals to practical inputs.	SAQA, NQF, PSIRA, DHET, ISO/SANS (9001, 45001, 50001).	VBA, Azure DevOps, GitHub, Salesforce, Microsoft Learn.	Technical Education and Professional Credentialing.	Automated digital audit trails.	Designed to resolve 3-6 month systemic latency in verification.	[13]
GENIE Security/Police/Safety Modules	Embedded protocols within the GENIAC framework for infrastructure protection and municipal energy compliance.	Fault detection, hazard mitigation, intrusion detection, and regulatory threshold enforcement.	PSIRA, MIL-STD-882 (System Safety), MIL-STD-810 (Environmental).	Visual Basic logic engines, Microcontroller testbeds, Biometric safeguards.	Private Security and Municipal Regulation.	PSIRA Grade Certificates, Compliance Logs.	Active Development; 100% syllabus coverage.	[8, 12]

Applied Policing and Crime Resolution	Integrating calculus and analytical techniques into law enforcement and security management.	Ballistic analysis using projectile motion equations and crime density modeling via spatial integration.	PSIRA, SAPS, Criminal Procedure Act, LRA, CCMA.	MIS, GIS, Forensic Tools, Data Analytics.	Security Science and Law Enforcement.	SAQA NQF Level Certificate.	100-point scale for technical aptitude.	[3]
Optimization of Microgrid Systems	Investigating AI-driven optimization for hybrid renewable microgrids and cost-benefit analysis in remote areas.	Microgrid system optimization and rural energy stability analysis.	NQF, SAQA, SANS.	Machine Learning, AI algorithms.	Power Systems and Renewable Energy.	Research methodology and feasibility reports.	30% reduction in load shedding incidents (Projected).	[4]
Matrix-UPS Development	Engineering of line-interactive Uninterruptible Power Supply (UPS) systems with zero transfer time.	Isolate power failures from loads and provide no-break backup power.	UL listed, CSA certified, TUV certified, FCC verified, EN 60 950.	Microprocessors, Isolation transformers, Tap changing regulators.	Critical Infrastructure.	Commercial Product.	93% efficiency at full load.	[2]
Psychometric Grade Rank Calculator	An automated evaluation tool integrating cognitive and behavioral	Evaluating candidate profiles for strategic recruitment in high-security and technical sectors.	3SAQ and DMCC psychometric standards.	Visual Basic for Applications (VBA), Hierarchical Bayesian Modeling (HBM).	Recruitment and Public Safety.	Certified Psychometric Evaluation Report (CPER).	Reliability metrics (ICC) between 0.40 and 0.82.	[14]

	traits into a career readiness index.							
Azure Load Balancer Implementation	A cloud-based solution for managing network traffic and ensuring high availability.	Distribute incoming network traffic across multiple servers.	Microsoft Cloud Standards.	Azure Load Balancer, Azure Traffic Manager.	Information Technology.	System Configuration.	924 modules completed.	[2]
Advanced Cybersecurity in Bibliotechnology	Focuses on protecting digital library systems and data integrity in library networks.	Incident response, recovery, and digital rights management.	ISO/IEC 27001.	AI, Blockchain, Firewalls, Intrusion detection systems.	Computer Engineering / IT.	Graduate degree credit.	100%.	[9]
Schneider Home Certification	Instruction on deploying Schneider Electric's innovation in home energy management.	Equip installers with skills to install and commission the Schneider Home system.	NABCEP CEU credits.	eSetup App, Smart Panel Setup App, Installer Portal.	Residential Energy.	Schneider Home Certification.	80% passing score required.	[2]
AIU AI Program Generator	A custom curriculum development system utilizing AI to tailor academic	Personalized curriculum design, competency mapping, and industry-driven content	Institutional academic standards.	Large Language Models (LLMs), NLP, Azure ML.	Higher Education and EdTech.	Customized Doctoral and Master's degrees.	100% completion metrics for specific candidates.	[6]

	programs to individual career aspirations.	generation.						
EcoConsult Electrical Digital Twin	Creation of digital replicas for electrical systems to improve safety and maintenance.	Maintain and digitize current systems to reduce carbon footprint.	EcoStructure standards.	Digital Twin technology, Data analytics.	Industrial Automation.	Consulting Service/ Digital Artifact.	Not in source.	[2]

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[14] career 15 application trade education orientation guide

Based on 24 sources

Entity Name	Request Subject	Curriculum Module	NQF Level	Technical Standard	Assessment Outcome	Regulatory Body	Source
Tshingombe Tshitadi Fiston (Tshingombe Engineering)	Engineering curriculum assessment and intellectual property (IP)	Power Machines, Industrial Electronics, Electrical Trade Theory, and	Level 6 (National N-Diploma)	MIL-STD 11991B, IEC, SANS, and ECSA standards	Audit-ready certificates, distinctions, and pass rates; 756.63 hours completed	SAQA, DHET, ECSA, and QCTO	[1-13]

	licensing	Electro-technics					
Tshingombe Tshitadi Fiston	National Qualification in Policing and Assessor Licensing	Conflict De-escalation and Engineering Education	Level 6	Private Security Industry Regulation Act and Contribute Covenant v2.1	Qualified/Registered; Granted license as Assessor & Moderator	PSiRA, SASSETA, and SETA	[3, 6, 7, 9]
Operation GENIAC (Tshingombe Engineering)	Defense-grade Intellectual Property (IP) licensing and tactical systems	Military-grade Logic, Automation, Tactical Systems, and Artillery	Level 5 military qualifications	MIL-STD-810H, MIL-STD-461G, and MIL-STD-882	Auditable combat readiness; GENIAC Certified	Metropolitan Police, PSIRA, and Brigade 119	[3, 14]
National N-Diploma (Engineering Studies)	Occupational Engineering Certification and Curriculum Assessment	Electrical Trade Theory, Mathematics, Engineering Science, and Industrial Electronics	Level 6	SANS 10142-1:2024 Edition 3.2 and IEC	40% pass mark and 18 to 24 months verifiable work experience	SAQA, DHET, and QCTO	[13, 15, 16]
St Peace College	Vocational credentialing and curriculum assessment audit	Electrical Trade Theory, Industrial Electronics, Mathematics, and Engineering Science	Level 4 (NCV) to Level 5	NEC (National Electrical Code) and DHET Exam Specifications	Distinction/Marks tracking and audit-ready documentation	QCTO and DHET	[2, 3, 6, 9, 15, 16]
Madinda Utilities	Advanced Metering Infrastructure (AMI) rollout and industrial metering	Electro-technical Measurement and Utilities diagnostics	Not in source	IEEE 1459 and AFSEC recommendations	Tamper-proof hardware validation and R600 million investment (COP24 grant funding)	DTIC, SAQA, NERSA, and AFSEC	[3, 13, 14]

Tshingombe Tshitadi Fiston	Industrial Automation and Software Licensing	EcoStruxure and Engineering Database Memory Trainer	Not in source	IEC and Visual Basic / GitLab Repository	140 courses in progress; Custom software ecosystem	Schneider Electric and GitLab	[6, 9, 10]
Tshingombe Engineering	Schneider Electrical License Project	Power Machines and Engineering trade application	N4-N6	MIL-STD-11991B and IEC	License granted	DHET, ECSA, and Schneider Electric	[3, 14]
Military Diploma in Electrotechnic Engineering	Professional Credentialing	Electrotechnic engineering	Level 5	MIL-STD-11991B	NQF Level 5 military qualification	SAQA and SASSETA	[14, 16, 17]
South African Qualifications Authority	Foreign Qualification Enquiry	Design Engineering Studies	Level 6	Not in source	Final award certificate validation	SAQA	[17, 18]
Metropolitan Police / Mayor's Office for Policing and Crime (MOPAC)	Trademark Licensing	Not in source	Not in source	Not in source	Not in source	Metropolitan Police / MOPAC	[1, 13]
S.E.E.E.I.S. U.A.	Energy Efficient Electrical Systems	Industrial Metering	Not in source	IEEE 1459 and MIL-STD-1394	Unified metering normalization	NERSA and DTIC	[3]
Tshingombe Tshitadi Fiston	Engineering Hardware Specification	Tantalum Chip Capacitors	Not in source	MIL-STD (US Military Standard)	Technical Spec Compliance	Department of Defense (DoD)	[8]
City Power Johannesburg	Substation Modernization	High/Low voltage installation	Not in source	SANS 10142	Security of supply improvement	NERSA	[3]
Not in source	National N-Diplomas	Industrial Electronics	Level 6	IEC	Pass	Quality Council for Trades and	[1]

						Occupations (QCTO)	
Not in source	Military Systems Parts Management	PM&P	Not in source	MIL-STD-11991B	Not in source	Department of Defense (DoD)	[13]
Not in source	Environmental Engineering Stresses	Vibration and Shock Testing	Not in source	MIL-STD-810H	Not in source	ATEC	[13]
Not in source	Digital System Assessment	NAND Gate Truth Table	Level 5	Not in source	8 Marks	DHET	[13]
Schneider Electric	Industrial Skills Certification	VFD commissioning and arc flash training	Not in source	Not in source	Credential completion	Not in source	[16]
Allison	Professional Training	Power system protection	Not in source	Not in source	Diploma in power system protection	SAQA	[16]
Tshingombe Tshitadi	Curriculum Assessment	Trade Wholesaler Education	Not in source	UNESCO TVET frameworks	Learner recognition	Council on Higher Education (CHE)	[1]
Not in source	Engineering Drawing Practices	Not in source	Not in source	MIL-STD-100G	Not in source	Department of Defense (DoD)	[13]
Engineering Council of South Africa (ECSA)	Engineering Standards Alignment	Trade & Engineering Education	Not in source	Not in source	Not in source	Engineering Council of South Africa (ECSA)	[13]
Council on Higher Education (CHE)	Educational Framework Guidelines	Trade & Engineering Education	Not in source	Not in source	Not in source	Council on Higher Education (CHE)	[13]

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[18] tshingombe tshitadi engineering and education technology engineering.pdf
Based on 19 sources

Program Title	Institution or Accreditation Body	NQF Level or Equivalent	Subject Area	Key Learning Outcomes	Assessment Type	Duration or Credit Value	Source
National Diploma: Engineering Studies (Electrical Engineering)	DHET / QCTO / SAQA	NQF Level 6	Electrical Engineering	Advanced electrotechnics, industrial systems, DC machines design, and power conversion; requires practical work experience.	Theoretical examinations, ICASS, and 24 months practical experience	360 Credits	[1-6]
Doctorate in Specialist Engineering Infrastructure and Contractors:	Atlantic International University (AIU)	NQF Level 10 or Equivalent	Electrical Engineering	Advanced power system analysis, renewable energy	Comprehensive exams and Dissertation (15,000 words)	Not in source	[1]

Electrical Engineering				systems, high voltage engineering, and smart grids.			
Master of Science in Electrical Engineering (MSEE)	Atlantic International University (AIU)	Master Level	Electrical Engineering	Define, design, and implement electrical systems; power generation, transmission, distribution, and electromagnetic principles.	Theoretical and practical tests, experimental logs, and capstone project	Not in source	[7, 8]
Master's Thesis Research: Energy in Rural Areas	Atlantic International University (AIU)	Master Level	Electrical Power Systems	Develop innovative solutions for energy distribution in rural areas; enhance power system efficiency and stability.	Academic evaluation, questionnaires, and videoconference	0.25 credit per live class component	[7]
Master's in Artificial General Intelligence and Social Sciences	Atlantic International University (AIU)	NQF Level 9 or Equivalent	Information Technology / Social Science	Intersection of AGI and social sciences, ethical considerations, human cognition, and economic implications.	Thesis research proposal and Examination project	Not in source	[1, 5, 8]
Master's in Various Disciplines	Atlantic International	Master Level	Various (Renewable Energy,	Specialized knowledge in fields	Academic assignments	Not in source	[1]

(Renewable Energy, Supply Chain, Law, Metallurgy, etc.)	University (AIU)		SCM, Public Admin, Metallurgy, Agriculture)	such as blockchain traceability, vertical farming, urban water management, or legal frameworks.			
Master in Modern Power and Energy Systems	Atlantic International University (AIU)	Master Level	Electrical Engineering / Energy Systems	Expert knowledge in power generation, transmission, distribution, and renewable energy integration.	Thesis Proposal and Master Thesis (7,500 words)	Not in source	[8]
Master's in Adult Education Services	Atlantic International University (AIU)	Master Level	Education Technology	Specialized focus on educational technology for educators and professionals.	Not in source	Not in source	[8]
Postdoctoral in Behavior Analysis In Special Education	Atlantic International University (AIU)	Postdoctoral	Education / Behavioral Interventions	Advanced expertise in behavioral interventions within the educational field.	Not in source	Self-paced	[7]
Masters in Curriculum Development	Atlantic International University (AIU)	Master Level	Education / Instructional Leadership	Shaping visionary educators and instructional leaders.	Not in source	Self-paced	[7]
Advanced Diploma in Electrical Engineering	SQA (Scottish Qualifications	SCQF Level 8	Electrical Engineering	Analogue and digital electronics, industrial	Logbook, Portfolio, and programming projects	30 unit credits	[2]

	Authority)			plant maintenance, high level engineering software, and computer aided design.			
Advanced Certificate in Electrical Engineering	SQA (Scottish Qualifications Authority)	SCQF Level 7	Electrical Engineering	Electrical principles, IT, induction motors, power electronics, PLC, and control systems.	Written exam and Laboratory assignments	96 SCQF credit points	[2]
National Certificate: Engineering Studies (Electrical) N1-N3	DHET / QCTO / SAQA	NQF Level 2, 3, or 4 (N1, N2, N3)	Electrical Engineering	Electrical trade theory, industrial electronics, mathematics, and engineering science.	Theoretical and Practical examinations (ICASS)	3 months per level (approx. 46-49 days)	[1, 3]
National Certificate (NCV)	DHET / SAQA	NQF Level 2-4	Vocational / Technical Trades	Focuses on practical skills training aligned with specific trades.	Integrated Continuous Assessment System (ICASS) and ISAT	Not in source	[5, 7, 9]
Artisan Recognition of Prior Learning (ARPL) Trade Test	merSETA / INDLELA	NQF Level 3/4 Equivalent	Electrical / Various Trades	Verification of prior work experience and practical trade skills for artisan status.	Practical trade test (at least 50% task pass rate required)	Based on 3-4 years work experience	[4]
National 5 Skills for Work: Energy	SQA (Scottish Qualifications Authority)	SCQF Level 5	Energy	Understanding energy systems, domestic wind	Experiential learning, role-play, and practical assignments	24 SCQF credit points	[2]

				turbines, solar hot water, and energy employability.			
National 4 Skills for Work Engineering Skills	SQA (Scottish Qualifications Authority)	SCQF Level 4	Engineering Skills	Foundational skills in mechanical, electrical/electronic, fabrication, and manufacture and assembly.	Practical tasks (tolerance ±3mm) and Portfolio	24 SCQF credit points	[2, 10]
Diploma in Electrical Studies	Alison (CPD UK)	Beginner / CPD Level	Electrical Engineering	Comprehensive understanding of the electrical trade, wiring systems, and workplace hazards.	Course assessments (80% pass mark required)	6–15 hours	[2, 5]
Advanced Diploma in Basics of Electrical Technology and Circuit Analysis	Alison (CPD UK)	Advanced / CPD Level	Electrical Engineering	Resistor types, electric shock prevention, and finding unknown resistance.	Multiple assessments throughout	15–20 hours	[2]
Electrical Measuring Instrumentation	Alison (CPD UK)	CPD Accredited Certificate	Electrical Engineering	Knowledge of electrical measuring tools and instrumentation.	Online Assessment (80% pass mark required)	Under 3 hours	[5]
N2 Electrical Trade Theory	DHET / Future Managers	NQF Level 2 Equivalent	Electrical Infrastructure	Knowledge of AC theory, conductors, insulators, cables,	Two formal class tests and national examination	100 hours	[4]

				switchgear, batteries, and DC machines.			
National Certificate: Industrial Electronics N5/N6	DHET / St Peace College	NQF Level 5/6 Equivalent	Electronics / IT	AC theory, power supplies, transistor amplifiers, operational amplifiers, and transducers.	Internal and external written examinations	One trimester	[4]
Mathematics N4 & N6	DHET (NATED)	N4 / N6	Engineering Mathematics	Advanced differentiation, integration, complex numbers, trigonometry, and calculus.	ICASS and 3-hour closed-book Final Exam	One trimester	[2, 4]
Engineering Science N4	DHET (NATED)	N4	Engineering Science	Kinematics, angular motion, dynamics, statics, hydraulics, stress/strain, and heat.	ICASS and 3-hour Final Examination	One trimester	[2]
Applied Management N6	DHET (NATED)	N6	Hospitality / Management	HR management, labor relations, productivity, marketing management, and control systems.	Semester Mark (Tests/Portfolio) and Final Exam	One semester	[2]
National Certificate: Engineering Physics N6	DHET / St Peace College	NQF Level 6 Equivalent	Natural Science Studies	Sound waves, thermodynamics, electrostatics, and atomic	External examination	Not in source	[4]

				physics.			
Control Systems N6	DHET / St Peace College	NQF Level 6 Equivalent	Industrial Electronics	Bode plots, Nichols charts, root locus plots, Laplace transforms, and PID control principles.	3-hour written examination	Not in source	[4]
Fault Find and Protective Device N5	DHET / St Peace College	NQF Level 5 Equivalent	Electrical Engineering	Design of control circuits, digital voltmeters, feedback amplifiers, and dynamic braking systems.	3-hour written examination	Not in source	[4]
Electrical Graduate Components (DSP, Control Design, Communication)	Atlantic International University (AIU)	Master Level	Electrical Engineering	Advanced discrete-time signals, feedback control systems, and wireless/fiber optic communication principles.	Hands-on simulations (MATLAB/Simulink/Python)	Not in source	[8]
Renewable Energy Systems	Atlantic International University (AIU)	Master Level	Renewable Energy	Evaluate alternative energy sources (solar, wind, hydroelectric) and provide applied solutions.	Custom program / Portfolio-based assessment	Not in source	[8]
Electrician Trade Practical Manual -	NSQF / St Peace College	NSQF Level 5	Digital Electronics	Construct and verify OR, AND, and NOT	Portfolio-Based Assessment	Not in source	[5]

Exercise 4.1.173				gates; identify TTL and CMOS logic ICs.			
Framework for Vocational Education (NATED/NCV Integration)	St Peace College / DHET	Thesis / Research	Vocational Management	Integration strategies for NATED and NCV; addressing policy irregularities and work-based learning.	Thesis research proposal / Portfolio of Evidence	Not in source	[1, 7]
PLC Training Courses	Schneider Electric South Africa	Technical Competency	Industrial Automation	Mastering PLC fundamentals, Modicon ranges, and troubleshooting automation systems.	Training assessment and e-learning records	Not in source	[7]
Electrician Sector Training	Not in source	National Qualification	Electrical Trade	Practical skills in overhead domestic service line installation, insulators, and solar panel assembly.	Electrical work assessments and industrial visits	2 years	[7]
Licensed Electrician's Assessment (LEA)	St Peace College / Industry	Apprenticeship	Electrical Trade	Wiring a meter box and switchboard, numerical reasoning, and spatial science.	Practical test (LEP) and Theory (LET)	15 minutes (Assessment category)	[3]
DP-100: Designing and Implementi	Microsoft	Badge/Certification	Data Science / IT	Designing and implementing data	Badge Completion	Completed on 5/13/2024	[10]

ng a Data Science Solution on Azure				science solutions on Azure.			
AZ-104 Microsoft Azure Administrator	Microsoft	Badge/Certification	Cloud Administration	Microsoft Azure administration and technical best practices.	Badge Completion	Completed on 5/13/2024	[10]
Bachelor's Degree in IT, Commerce, or Computer Science	SAQA	NQF Level 7	ICT	ICT function leadership, software implementations, and IT governance.	Vetting, credit and criminal record verification	Not in source	[6]
NQF Level 9 qualification (IT or Business)	SAQA	NQF Level 9	IT or Business	Leading automation projects and enterprise architecture.	Not in source	Not in source	[6]
Occupational Qualification: Star CCTV Business	QCTO	Not in source	Security Technology	CCTV use, camera installation, and monitor fixing (indoor/outdoor).	Skill programmed development report	Not in source	[3]
IEC 62368-1:2024 Masterclass	International Electrotechnical Commission	Not in source	Electrical Safety Standards	Standard for safety requirements for electrical and electronic equipment.	Training/Masterclass	Not in source	[11]
From Idea to Reality: Company Setup Guide	Atlantic International University (AIU)	Not in source	Business / Entrepreneurship	Practical steps for setting up a new company.	Certificate of Participation	Live class session	[2]
Fundamentals of Power Electronics	Not in source	Not in source	Power Electronics	Understand semiconductor devices, rectifier	Computer Lab simulation and hands-on testing	Not in source	[7]

				circuits, and PWM techniques.			
Bachelor's Degree / Advanced Diploma in HR Business Partnering	Not in source	NQF Level 7	Human Resources	HR advice and Human Capital Development Strategy delivery.	Not in source	Not in source	[6]
Honours / Postgraduate Diploma	Not in source	NQF Level 8	Management / Finance	Strategic management and functional leadership.	Not in source	Not in source	[6]
Bachelor's Degree / Advanced Diploma in Data Analysis, Fraud, or Tax	Not in source	NQF Level 7	Data Analysis / Tax	Data analysis skills (SQL, Python, ACL) and fraud prevention.	Not in source	Not in source	[6]
Higher Certificate	Not in source	NQF Level 5	Debt Management	Processing estates debt management cases.	Not in source	Not in source	[6]
National Diploma/Advanced Certificate in Online Forensics	Not in source	NQF Level 6	Digital Forensics	Identify, acquire, preserve, and analyse digital evidence.	Not in source	Not in source	[6]
National Diploma or Advanced Certificate in Auditing, Accounting and Taxation	SARS / SAQA	NQF Level 6	Auditing / Taxation	Tax auditing or assessment maintenance knowledge.	Not in source	Not in source	[6]
Adv Cert: Educ: Technical Education	Not in source	NQF Level 6	Technical Education	Technical education expertise and panel	Not in source	Not in source	[6]

				wiring skills.			
Senior Certificate	Not in source	NQF Level 4	General Education	Foundational education for tax auditing or management roles.	Not in source	Not in source	[6]

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[11] IEC Masterclass Quote for Tshingombe Tshitadi

Based on 50 sources

ID	Component_Title	Category	Type	Description	Technical_Specification	Status	NQF_Level	Source
90674	National Diploma in Electrical Engineering	Education / Engineering	Curriculum Submodule	Comprehensive engineering qualification path covering levels N1 to N6.	Total Credits: 9.57	Active	NQF Level 6	[1]
SAQA 111285	National Diploma in Electrical Engineering	Engineering	Curriculum Submodule	Pathway for building careers in maintenance, soldering, and system design.	360 Credits; 18 months	Active	NQF Level 6	[2]
NQF 6	Diploma / Advanced Certificate	Higher Education	Educational Standard	Mapping of engineering electrical qualification	360 Credits	Active	6	[3]

				to national standards.				
61729	National Certificate in Traffic and Policing	Governance	National Framework Qualification	Focuses on the resolving of crime and policing functions.	70% practical, 30% theory	Active	NQF Level 6	[4]
N6	Mathematics	Engineering	Curriculum Submodule	Advanced mathematical logic and calculus for engineering systems at N6 level.	Credit: 0.3; Weight: 0.3	Completed	Level 6	[5, 6]
NQF L5	National Certificate: Paralegal Practice	Governance	National Framework Qualification	Qualification focused on training and development of paralegals.	Not in source	Ended	NQF Level 5	[4]
WA Code 3.2.1	Metering System	Engineering	Curriculum Submodule	Energy profile and metering system diagnostic output.	$E=\int P(t)dt$	Active	NQF Level 5	[7]
N4	Engineering Science	Engineering	Curriculum Submodule	Theoretical engineering principles and science-based modules for technical training.	Credit: 0.3; Weight: 0.3	Completed	Level 4 / 5	[5, 6]
N4	Mathematics N4	Engineering	Curriculum Submodule	Syllabus covering Determinants, Complex Numbers, and Trigonometry.	Not in source	Active	NQF 4	[2]
N4	Electrotechnics	Engineering Studies	Curriculum Submodule	Advanced electrical engineering studies.	Not in source	Active	Not in source	[4]

N3	Electro-Technology	Engineering	Curriculum Submodule	Advanced electrical trade theory, electronics, and practical integration.	0.3 Credit value; Weight: 0.3	Completed / Passed	Level 3	[5, 6, 8]
N3	Electrotechnology	Engineering	Curriculum Submodule	Advanced engineering study focusing on industrial electricity.	Not in source	Active	Not in source	[3]
N3	Mechanotechnology	Engineering Studies	Curriculum Submodule	Study of mechanical technologies and industrial applications.	Not in source	Active	Not in source	[4]
16030263	Mathematics	Engineering	Curriculum Submodule	Core mathematics for engineering streams.	Not in source	Completed	N3	[9]
15070413	Engineering Science	Engineering	Curriculum Submodule	Core engineering principles and physics.	Mark ≥ 50 (Pass)	Completed	N3	[9, 10]
8090283	Engineering Drawing	Engineering	Curriculum Submodule	Technical drawing and design principles.	Not in source	Completed	N3	[9]
N1-N3	Electrical Trade Theory	Engineering	Curriculum Submodule	Covers foundational concepts like safety precautions, DC theory, conductors, and wiring systems.	Not in source	Active / Modular content	NQF 1-3	[2, 11, 12]
N2	Electrical Trade Theory	Engineering	Curriculum Submodule	Equipment and theoretical knowledge for electrical apprenticeshi	Duration: 100 hours / 1 Trimester	Active	Not in source	[3, 4]

				ps including AC circuit theory and machines.				
N1	Electrical Trade Theory	Engineering	Curriculum Submodule	Foundational electrical theory, science, and introductory trade knowledge for electricians.	Credit: 0.3; Weight: 0.3; 100 hours duration	Completed / Active	Level 4	[3-5]
N1	Mathematics	Engineering	Curriculum Submodule	Electrical engineering theoretical instruction.	0.3 Credit Value	Passed	4	[8]
N1	Engineering Electrical	Engineering	Curriculum Submodule	Mapping of engineering electrical subjects and modules.	SAQA ID 67109	In Progress	Level 1	[6]
WA Code EA2	Basic Electrical Safety	Education / Safety	Curriculum Submodule	Safety certification acquired through the Sci-Bono Discovery Centre journey.	Duration: 3 hours	Completed	NQF Level 4	[1]
Kfrm1	Registration / UserForm	IMS Framework / Software	VBA Form	Modular logigram and interface for initial registration capturing name, surname, ID, and cellphone.	Binary state tracking: S1+∑(K1 to K17)	Active	Not in source	[1, 3, 5, 6, 8, 9, 13]
Kfrm2	Address and Birthday Capture	IMS Framework / Software	VBA Form	Secondary registration module capturing user address	Binary state tracking: S2+∑(K18 to K33)	Active	Not in source	[1, 5, 8, 13]

				and date of birth for profiling.				
Kfrm3	Registration Confirmation	Information Management System	VBA Form	Form for confirming registration details.	Binary state tracking: S3+∑(K33 to K34)	Active	Not in source	[5]
Kfrm4	Login and Credential Recovery	Governance / Software	VBA Form	Secure user authentication and credential recovery interface; check logic: admin/1234.	Binary state tracking: S4+∑(K34 to K45)	Active	Not in source	[1, 5, 8, 13]
Kfrm5	Resend Password and Save Record	Information Management System	VBA Form	Handles password resending and database record saving.	Binary state tracking: S5+∑(K45 to K51)	Active	Not in source	[5]
Kfrm6	Biometric Scan and Security Validation	Security / Software	VBA Form	Biometric identity verification module simulating scan success or failure.	Binary flag = 1; S6+∑(K51 to K52)	Active	Not in source	[1, 5, 8, 13]
SHEET_CASES	Credential Case Management System	Software	VBA / Excel Interface	VBA-driven system to track credential cases, refunds, and recognition requests.	Status flags: Submitted, Draft; Priority: High/Normal	Active	Alignment mentioned	[11]
Domains(2)	Information Development Systems	Software / Documentation	Modular Database	Manages technical sheets, registration logs, company records, and metadata.	Multilingual	Audit-ready	Not in source	[9]
Domains(	Information	Business	ERP /	Manages	Real-time data	Activ	Not in	[9]

3)	Systems (PC)	Operations	CRM	sales, client data, energy usage, and project tracking.	visibility	e	source	
Domains(4)	Technology Information (PC)	Software	Productivity Tools	Tools for word processing, spreadsheets, and automation via VBA macros.	File-based data	Active	Not in source	[9]
Domains(5)	Computer Science	Theoretical / Software	Programming	Programming, algorithms, equations, proofs, and software engineering logic.	Logic statements (Java, Python, DOS)	Active	Not in source	[9]
Domains(6)	AI & Expert Systems	Software / AI	Intelligent Automation	Simulates expert reasoning and manages large datasets with knowledge bases.	Natural language / Predictive power	Active	Not in source	[9]
SHA256	Certificate Issuance Function	Security / Software	Logic Module	Generates a 256-bit hash (64 hex characters) for product certificates/traceability.	256-bit hash output	Active	Not in source	[1, 13, 14]
Relay Z	Impedance Logic	Engineering	Logic Module	Calculation of relay current impedance and fault detection magnitude comparison.	Z=rg+jxd	Active	Not in source	[1, 13]
1A	Control Register	Engineering /	Hardware Interface	Interface for reading port	Register address:	Active	Not in source	[1, 13]

		SCADA		status and SCADA switch control register.	&H1A			
Item Code 0099636963	Safe Secure Policy Module	Governance / Instructional	Instructional Module	Regulatory training and policy module for safe and secure implementation.	Value: R50,096,996.00	Untracked	Not in source	[8-10]
Processor	Processor	Hardware	System Requirement	Controls execution of instructions.	50 MHz to 500 MHz	Active	Not in source	[5, 8, 9]
RAM	RAM	Hardware	System Requirement	Temporary memory for active tasks.	256 MB	Active	Not in source	[5, 8, 9]
Storage	Storage	Hardware	System Requirement	Permanent data storage space.	2 GB available	Active	Not in source	[5, 9]
408 IB QUAD	Reader Module	Hardware	Embedded Systems	ADC module for signal acquisition and signal processing conditioning.	15-bit ADC, 32kHz clock, 3V amplitude	Active	Not in source	[15, 16]
MKM35512 SERIES	Three Phase Smart Power Meter	Software / Engineering	Hardware/ Software	Static watt-hour smart meter design based on MCU Series MKM35512.	Accuracy 0.5%, 240 vac, 0-60a, GPRS	Active	Not in source	[11, 12, 17]
Article 32	Security of Processing	Software / Technical	Regulatory Requirement	Obliges implementation of technical and organizational measures for security.	Risk-based implementation	Active	Not in source	[18]
Section 24	Reportable Incidents	Health and Safety	Regulatory Requirement	Categorizes work-related incidents requiring	Report within 72 hours	Active	Not in source	[18]

				immediate reporting (e.g., death).				
BS 9997:2019	Fire Risk Management Systems	Governance	Technical Standard	Standard for managing and controlling fire-associated risks in complex infrastructures.	Plan-Organize-Control-Monitor-Review	Active	Not in source	[18]
ISO 12100	Safety of Machinery	Engineering	International Standard	Defines machinery as an assembly with a drive system and moving parts.	Risk Assessment Procedure	Active	Not in source	[18]
Module 1	Alternating Current Theory	Engineering	Curriculum Submodule	Covers dynamically and statically induced EMF and power triangles.	10 hours	Active	Not in source	[3, 4]
Module 5	Batteries	Engineering	Curriculum Submodule	Study of Gel, Lead-acid, and Lithium-ion batteries.	10 hours	Active	Not in source	[3, 4]
Energy Calculator	Energy Calculator	Engineering	VBA Formula	Computes kWh/month for operations.	Binary fiscal tracking	Active	Not in source	[9]
H(s)	Filter Circuit Transfer Function	Engineering	Hardware	Laplace Transfer Function for bandwidth tuning and dielectric loss analysis.	H(s)=1/(RCs+1)	In Progress	Not in source	[7]
Not in source	Digital Signal Processing	Engineering / Software	Curriculum Submodule	Analysis and processing of digital signals using Fourier/Lapla	H(s)=Y(s)/X(s) Transfer Function	Active	NQF 6/9 Inferred	[13, 19]

				ce.				
Not in source	Binary Weighted DAC	Embedded Systems	Hardware	Converts bit mappings BIT3 to BIT0 into specific output voltages.	8-bit resolution (0-255)	Audit-Ready	SAQA/NQF Compliant	[15]
7.1	Masters in Vertical Farming	Education	Curriculum Submodule	Advanced biotechnology and urban farming framework.	Enabled = TRUE	Not in source	PG	[20]
13-2310	Desktop Application Processor	Software/Hardware	Technical Specification	System requirements for police station information management system.	64bit, RAM 8.00	Active	Not in source	[3]
Not in source	Volt Meter	Engineering	Hardware Measurement	Measurement tool for voltage levels.	220v to 480v	Active	Not in source	[21, 22]
Not in source	Amperemeter	Engineering	Hardware Measurement	Measurement tool for electric current range.	10A to 50A	Active	Not in source	[21, 22]
Uc1	Create Account	Governance	System Use Case	Process for administrators to create user accounts.	Boolean logic (X1=0 to X8=0)	Active	Not in source	[23]
Uc26	Register First Information Report	Governance	System Use Case	Process for preventive police to register FIRs.	S1=1 to S8=1 logic flags	Active	Not in source	[23]
Article 12	Transparency Requirement	Governance	Regulatory Requirement	Mandates provision of clear, concise information to data subjects.	Not in source	Active	Not in source	[18]
Article 5	Principle of Accountabi	Governance	Regulatory Requireme	Responsibility of	Not in source	Active	Not in source	[18]

	lity		nt	organizations to demonstrate compliance with data processing.				
Article 4	Data Controller	Governance	Legal Definition	Entity determining purposes and means of personal data processing.	Not in source	Active	Not in source	[18]

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Based on 20 sources

Item	Current Unit Price	Quantity Sold	Total	Average Price	Source
001126867 - Instruction, food medicinal value assessment, low	ZAR 5,009,898.00	2.0	ZAR 10,019,796.00	ZAR 5,009,898.00	[1]
0022345 - Instruction, bio food manufacturing, package assembly mechanical	ZAR 5,090,098.00	1.0	ZAR 5,090,098.00	ZAR 5,090,098.00	[1]
0092096 - Instruction, database drawing CAD, commissioner	ZAR 2,589,658.00	1.0	ZAR 2,589,658.00	ZAR 2,589,658.00	[1]
0072569 - Instruction, commission composite, visa ID, supply	ZAR 2,536,609.00	1.0	ZAR 2,536,609.00	ZAR 2,536,609.00	[1]
00725669 - Instruction commission, municipality, visa engine supply	ZAR 2,506,690.00	1.0	ZAR 2,506,690.00	ZAR 2,506,690.00	[1]
000123 - Engineering chemistry, engineering physics, metallurgy	ZAR 2,000,000.00	3.0	ZAR 6,000,000.00	ZAR 2,000,000.00	[1]
Durban Campus: Senior Lecturer – NCV Engineering Studies: Electrical, Maths (Ref: DBN03/22)	ZAR 353,979.00	5	ZAR 1,769,895.00	ZAR 353,979.00	[2]
001123456 - Instruction, biotechnology machine, food cook, agro value	ZAR 500,989.00	2.0	ZAR 1,001,978.00	ZAR 500,989.00	[1]
001123984 - Instruction, typical food nutrient pH, basic, acid 7, GRA value	ZAR 500,989.00	2.0	ZAR 1,001,978.00	ZAR 500,989.00	[1]
Assistant Director: Monitoring and Evaluation (Ref: DHET78/05/2023)	ZAR 527,298.00	2	ZAR 1,054,596.00	ZAR 527,298.00	[2]
00114356 - Instruction, policy safe biotechnology skill development, low	ZAR 500,098.00	2.0	ZAR 1,000,196.00	ZAR 500,098.00	[1]
00122357 - Instruction, food value Assessment Portfolio, low, OSHA	ZAR 500,098.00	2.0	ZAR 1,000,196.00	ZAR 500,098.00	[1]
002345 - Engineering, construction civil, mechanical, construction electrical	ZAR 345,654.00	3.0	ZAR 1,036,962.00	ZAR 345,654.00	[1]
Deputy Director: Teacher Education Data and Review	ZAR 958,824.00	Not in source	ZAR 958,824.00	ZAR 958,824.00	[2]

(Ref: DHET50/05/2023)					
As-Salaam Campus: Senior Lecturer – Business Studies, Public Management (Ref: ASA02/2022)	ZAR 353,979.00	2	ZAR 707,958.00	ZAR 353,979.00	[2]
0072536 - Instruction commission, plate fiscal, empower, value	ZAR 639,980.00	1.0	ZAR 639,980.00	ZAR 639,980.00	[1]
009258886 - Instruction, database intelligence robot, system	ZAR 582,669.00	1.0	ZAR 582,669.00	ZAR 582,669.00	[1]
0072693 - Instruction, commission, visa city meter, plate, fiscality	ZAR 528,809.00	1.0	ZAR 528,809.00	ZAR 528,809.00	[1]
0072698 - Instruction commission, visa weight plate number, fiscality	ZAR 258,800.00	1.0	ZAR 258,800.00	ZAR 258,800.00	[1]
00652 - Instruction, visa, marketing department, license fiscal	ZAR 258,369.00	1.0	ZAR 258,369.00	ZAR 258,369.00	[1]
007255 - Instruction commission, engineering visa, passport, ID supplies	ZAR 200,690.00	1.0	ZAR 200,690.00	ZAR 200,690.00	[1]
Senior Lecturer - Engineering / Business Studies (Ref: APP03/2022, APP04/2022, ASA03/2022)	ZAR 353,979.00	Not in source	ZAR 353,979.00	ZAR 353,979.00	[2]
RDX 320 vacuum autoclaves, part number 016000	Not in source	39	ZAR 550,000.00	Not in source	[3]
00112345 - Instruction, health clean biotech, food, vacuum trend low	ZAR 50,098.00	2.0	ZAR 100,196.00	ZAR 50,098.00	[1]
00112345098 / 0011236398 - Instruction, biotechnology, food beverages, composite	ZAR 50,000.00	4.0	ZAR 200,000.00	ZAR 50,000.00	[1]
Business Engineering	ZAR 20,000.00	5	ZAR 100,000.00	ZAR 20,000.00	[4]
00113456 - Instruction, biomicrobiology, scanner biochem, low	ZAR 50,009.00	2.0	ZAR 100,018.00	ZAR 50,009.00	[1]
A-Lab Application	ZAR 120,000.00	1	ZAR 120,000.00	ZAR 120,000.00	[5]
Engineering electrical	ZAR	2	ZAR	ZAR	[4]

assessment curriculum policy / Engineering studies	50,000.00		100,000.00	50,000.00	
Electrical portfolio review / Develop integrated portfolio framework	ZAR 50,000.00	2	ZAR 100,000.00	ZAR 50,000.00	[4]
007236 - Instruction commission, ID visa, weight scale, plate supply	ZAR 52,669.00	1.0	ZAR 52,669.00	ZAR 52,669.00	[1]
00920996 - Instruction, office travelling, commissioner rulings	ZAR 52,000.00	1.0	ZAR 52,000.00	ZAR 52,000.00	[1]
001134567 - Instruction, agro pastoral tools equipment, low	ZAR 50,000.00	1.0	ZAR 50,000.00	ZAR 50,000.00	[1]
0092609 - Instruction, performance, info database code	ZAR 56,800.00	1.0	Not in source	Not in source	[6]
0 - Fiscal fraud, minimum/maximum value, energy tax, engine	ZAR 25,000.00	1.0	ZAR 25,000.00	ZAR 25,000.00	[1]
00526 - Instruction, visa electrical, meter energy, permit	ZAR 25,000.00	1.0	ZAR 25,000.00	ZAR 25,000.00	[1]
007200 - Instruction commission, council, visa passport ID	ZAR 25,000.00	1.0	ZAR 25,000.00	ZAR 25,000.00	[1]
Seminar: chairing discipline hearing, convention centre JHB	ZAR 5,079.13	4	ZAR 20,316.52	ZAR 5,079.13	[3]
9PX UPS System Sale	ZAR 18,000.00	1	ZAR 15,000.00	ZAR 15,000.00	[7]
001334 - Engineering plastic, metallurgy, geotechnical	ZAR 2,345.00	5.0	ZAR 11,725.00	ZAR 2,345.00	[1]
National N Diploma (N6)	ZAR 12,000.00	1	ZAR 12,000.00	ZAR 12,000.00	[4]
EcoStruxure Smart Panel / Smart Panel Installation	ZAR 12,000.00	1	ZAR 10,000.00	ZAR 10,000.00	[7], [8], [9]
MATLAB Research License	ZAR 12,000.00	1	ZAR 4,000.00	ZAR 4,000.00	[7]
Trimester program level fees	ZAR 11,000.00	Not in source	Not in source	ZAR 11,000.00	[4]
Complete Engineering Patent Filing (South Africa)	ZAR 30,000.00	1	ZAR 30,000.00	ZAR 30,000.00	[7]
Rescission ruling hearing (Reward)	ZAR 5,000.00	1	ZAR 5,000.00	ZAR 5,000.00	[10]

0072096 - Instruction, bulletin, visa certificate, metering city	ZAR 2,500.00	1.0	ZAR 2,500.00	ZAR 2,500.00	[1]
0092086 - Instruction info management system, commissioner, rulings	ZAR 2,500.00	1.0	ZAR 2,500.00	ZAR 2,500.00	[1]
Professional Engineering Registration	ZAR 1,500.00	1	ZAR 1,000.00	ZAR 1,000.00	[7], [8], [9]
Smart Meter Installation – Industrial Zone 3	ZAR 3,200.00	1	ZAR 2,370.00	ZAR 2,370.00	[7]
SCQF Level 6 Award	ZAR 3,000.00	1	ZAR 3,000.00	ZAR 3,000.00	[4]
Financial Means Undertaking (Administrative Fee for Visa)	ZAR 3,000.00	Not in source	Not in source	ZAR 3,000.00	[2]
Azure AI Fundamentals	ZAR 1,500.00	1	ZAR 1,000.00	ZAR 1,000.00	[4]
CPS Architecture & IoT Lab	ZAR 1,500.00	1	ZAR 1,100.00	ZAR 1,100.00	[4]
Textbooks per trimester	ZAR 1,500.00	Not in source	Not in source	ZAR 1,500.00	[4]
Labour Law Training Module	ZAR 1,200.00	1	ZAR 800.00	ZAR 800.00	[7], [8], [9]
Marketing Engineering	ZAR 460.00	2	ZAR 920.00	ZAR 460.00	[4]
Electrical Wiring Kit	ZAR 450.00	1	ZAR 300.00	ZAR 360.00	[7], [8], [9]
Elektor Electronics Starter Kit	ZAR 450.00	1	ZAR 360.00	ZAR 360.00	[7], [9]
MBM302 Master Thesis Review	ZAR 450.00	1	ZAR 300.00	ZAR 300.00	[7], [8], [9]
Research Publication	ZAR 500.00	1	ZAR 500.00	ZAR 500.00	[4]
Engineering Drawing Textbook (St Peace College)	ZAR 350.00	1	ZAR 250.00	ZAR 250.00	[7]
CI/CD Pipeline Subscription	ZAR 120.00	Not in source	ZAR 60.00	ZAR 80.00	[8], [9]
Reward Model Deployment – PRM (GitHub)	ZAR 120.00	1	ZAR 80.00	ZAR 80.00	[7], [9]
Transcribing jr2461/2015 (Standard page)	ZAR 30.00	Not in source	ZAR 426.00	ZAR 30.00	[10]
Open Access Publication Fee (NSF / F1000Research)	$1,200.00	1	$400.00	$400.00	[7]
Application Fee (Masters of Electrical Engineering / AIU)	150 USD	1	150 USD	150 USD	[11], [12], [3]
Diploma in Electrical Engineering (Alison)	$124.46	1	$93.35	$93.35	[7]

Engineering Research Publication	USD 99	1	USD 99	USD 99	[8]
Issue a non-expiring certificate (BlockMark)	£10 (1000 credits)	Not in source	Not in source	£10	[7]
Issue a certificate with expiry / CPD folder (BlockMark)	£1 (100 credits)	Not in source	Not in source	£1	[7]
Electrician 1st Year (Volume I) Trade Theory	₹285.00	1	₹285.00	₹285.00	[7]
Sci-Bono Discovery Centre: Family Ticket	ZAR 180.00	Not in source	Not in source	ZAR 180.00	[13]
Sci-Bono Discovery Centre: Adults (18+)	ZAR 60.00	Not in source	Not in source	ZAR 60.00	[13]
Sci-Bono Discovery Centre: Children / Pensioners / Students	ZAR 40.00	Not in source	Not in source	ZAR 40.00	[13]
National 4 Skills for Work Engineering (Mandatory Units)	Not in source	1	24 SCQF Credits	Not in source	[10]
National Diploma in Electrical Engineering (SAQA 111285)	Not in source	1	360 Credits	Not in source	[10]
Mechanical / Electrical / Fabrication / Assembly Skills	Not in source	1	6 SCQF Credits	Not in source	[10]
Energy: Solar / Wind Systems	Not in source	1	6 SCQF Credits	Not in source	[10]
Energy: Employability and Careers	Not in source	1	3 SCQF Credits	Not in source	[10]
Minimum Budget (National Skill/Research Fund Career Proposal)	ZAR 40,000.00	Not in source	Not in source	ZAR 40,000.00	[14]
Variable speed drive, Altivar Process ATV930, 160kW	ZAR 334,238.57	Not in source	Not in source	Not in source	[15]
License, EcoStruxure Control Expert, XL, 10 users	ZAR 246,769.59	Not in source	Not in source	Not in source	[15]
Redundant processor, Modicon M580, 8MB	ZAR 177,037.09	Not in source	Not in source	Not in source	[15]
License, EcoStruxure Automation Expert, Professional	ZAR 157,500.00	Not in source	Not in source	Not in source	[15]
Soft starter, Altistart 22, 75 to 132kW	ZAR 65,378.96	Not in source	Not in source	Not in source	[15]
License, EcoStruxure Automation Expert, Standard Buildtime	ZAR 65,100.00	Not in source	Not in source	Not in source	[15]
License, EcoStruxure	ZAR	Not in	Not in source	Not in source	[15]

Automation Expert, M580 dPAC extensions	56,448.56	source			
Contactor body, TeSys F, 3P, 265A	ZAR 28,920.36	Not in source	Not in source	Not in source	[15]
Battery control module, Phaseo ABL7/ABL8, 40A	ZAR 17,709.70	Not in source	Not in source	Not in source	[15]
License, EcoStruxure Automation Expert, M580 dPAC	ZAR 15,540.00	Not in source	Not in source	Not in source	[15]
License, EcoStruxure Control Expert, small S, 1 user	ZAR 14,435.28	Not in source	Not in source	Not in source	[15]
TeSys F - main contact set - 3P	ZAR 14,154.02	Not in source	Not in source	Not in source	[15]
Circuit breaker, ComPacT NSX400H, 320A	ZAR 14,080.25	Not in source	Not in source	Not in source	[15]
Regulated switch power supply, Modicon, 3 phase, 24V, 20A	ZAR 13,112.60	1	Not in source	Not in source	[15], [3]
License, EcoStruxure Automation Expert, HMI, Harmony iPC	ZAR 12,600.35	Not in source	Not in source	Not in source	[15]
Battery control module, Phaseo ABL7/ABL8, 20A	ZAR 11,849.78	Not in source	Not in source	Not in source	[15]
Controller, Modicon M171/M172/M173, 22 IO	ZAR 9,888.63	Not in source	Not in source	Not in source	[15]
Contactor, TeSys Deca, 3P, 115A	ZAR 9,642.90	Not in source	Not in source	Not in source	[15]
Bus coupler, TeSys island, 24VDC, Ethernet	ZAR 8,961.41	Not in source	Not in source	Not in source	[15]
Electronic protection module, Phaseo ABL7/ABL8, 10A	ZAR 8,177.54	Not in source	Not in source	Not in source	[15]
Buffer module, Phaseo ABL7/ABL8, 40A	ZAR 7,843.36	Not in source	Not in source	Not in source	[15]
Power supply module, Modicon X80, 24V DC, 16.8W	ZAR 7,707.26	1	Not in source	Not in source	[15], [3]
Rack, Modicon X80, 8 slots, Ethernet	ZAR 6,848.84	Not in source	Not in source	Not in source	[15]
License, EcoStruxure Automation Expert, M251/M262 dPAC	ZAR 6,216.70	Not in source	Not in source	Not in source	[15]
License, EcoStruxure Control Engineering, verification	ZAR 5,582.20	Not in source	Not in source	Not in source	[15]
Redundancy module, Phaseo	ZAR	Not in	Not in source	Not in source	[15]

ABL7/ABL8, 40A	5,529.38	source			
License, EcoStruxure Control Engineering, documentation	ZAR 4,651.84	Not in source	Not in source	Not in source	[15]
EEV Driver, Autonomous & Modbus	ZAR 4,570.62	Not in source	Not in source	Not in source	[15]
Voltage interface module, TeSys island, 690VAC	ZAR 4,366.24	Not in source	Not in source	Not in source	[15]
Contactor coil, TeSys Deca, LX1D8, 230V AC	ZAR 3,914.73	Not in source	Not in source	Not in source	[15]
EEV Driver, Autonomous & Hardwired	ZAR 3,737.01	Not in source	Not in source	Not in source	[15]
Easy UPS control module, 24V DC, 20A	ZAR 3,679.82	Not in source	Not in source	Not in source	[15]
EEV Driver, Actuator	ZAR 3,449.54	Not in source	Not in source	Not in source	[15]
Modicon M171 Optimized Display LCD	ZAR 3,104.58	Not in source	Not in source	Not in source	[15]
Easy UPS battery module, 24V DC, 4.5Ah	ZAR 2,943.82	Not in source	Not in source	Not in source	[15]
License, EcoStruxure Automation Expert, HMI, Harmony ST6	ZAR 2,625.00	Not in source	Not in source	Not in source	[15]
Time delay auxiliary contact block, 10-180s	ZAR 2,393.92	Not in source	Not in source	Not in source	[15]
Modicon M171 Optimized Wall thermostat	ZAR 2,170.34	Not in source	Not in source	Not in source	[15]
Time delay auxiliary contact block, 0.3-3s	ZAR 2,151.05	Not in source	Not in source	Not in source	[15]
Modicon M171 Optimized Display LED	ZAR 1,802.40	Not in source	Not in source	Not in source	[15]
Motor circuit breaker, TeSys Deca, 3P, 1 to 1.6A	ZAR 1,709.72	Not in source	Not in source	Not in source	[15]
TeSys F - suppressor module - RC circuit	ZAR 1,344.07	Not in source	Not in source	Not in source	[15]
Low level auxiliary contact, OF/SD/SDE/SDV	ZAR 1,005.92	Not in source	Not in source	Not in source	[15]
License, EcoStruxure Automation Expert, high availability	ZAR 840.00	Not in source	Not in source	Not in source	[15]
License, EcoStruxure Automation Expert, ATV dPac	ZAR 777.00	Not in source	Not in source	Not in source	[15]
Auxiliary contact, TeSys GV4,	ZAR 606.49	Not in	Not in source	Not in source	[15]

690VAC		source			
Auxiliary contact block, TeSys Deca, 1NO+3NC	ZAR 600.08	Not in source	Not in source	Not in source	[15]
Connector kit, Modicon M340, spring type	ZAR 561.57	Not in source	Not in source	Not in source	[15]
Modicon M171 Optimized LV Connector 1m cable	ZAR 555.78	Not in source	Not in source	Not in source	[15]
Connector kit, Modicon M340, cage clamp	ZAR 527.05	Not in source	Not in source	Not in source	[15]
Torque limiting screws, ComPact NSX400/630	ZAR 489.96	Not in source	Not in source	Not in source	[15]
License, EcoStruxure Automation Expert, device runtime add-on	ZAR 378.00	Not in source	Not in source	Not in source	[15]
Auxiliary contact block, TeSys Deca, 1NO+1NC	ZAR 350.84	Not in source	Not in source	Not in source	[15]
Auxiliary contact block, TeSys Deca, 1NC	ZAR 277.79	Not in source	Not in source	Not in source	[15]
NTC 3.0m IP68 5x20 -50 to +110°C Grey	ZAR 229.99	Not in source	Not in source	Not in source	[15]
NTC 1.5m IP68 5x20 -50 to +110°C Grey	ZAR 143.76	Not in source	Not in source	Not in source	[15]
Modicon M171 Optimized AO Connector 1m/2m cable	ZAR 140.86	Not in source	Not in source	Not in source	[15]
LMC100CAA1000 motion controller kit	Not in source	1	Not in source	Not in source	[3]
GV2ME32: Motor circuit breaker, TeSys Deca, 24 to 32A	Not in source	Not in source	Not in source	Not in source	[3]
LC1D25P7: Contactor, TeSys Deca, 25A, 230V AC	Not in source	Not in source	Not in source	Not in source	[3]
ATV12HU22M2: Variable speed drive, Altivar 12, 2.2kW	Not in source	Not in source	Not in source	Not in source	[3]

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Based on 20 sources

Qualification or Program Title	Associated Institution or Employer	Technical Modules and Subject Areas	NQF Level and Credits	Compliance and Quality Standards	Operating and Task Details	Total Cost or Budget	Source
Engineering electrical n4,5,6 assessment police /implementation work	St peace college / afric institute police / National Skills Fund	Engineering electrical assessment curriculum policy, electrical portfolio, engineering study assessment, and implementation work	N4, N5, N6	QCTO, SAQA, DHET	Step-by-step implementation, monitoring, and evaluation of proposed projects; includes recruitment and selection, learning delivery, and disability allowance	R 40,000,000.00 (Max Budget)	[1]
Electrician (Shift Worker)	City Power Johannesburg (SOC) Ltd	Electrical distribution environment, LV and MV underground and overhead networks, transformers, and	N2 Electrical Engineering and Trade Test Certificate	SHEQ requirements, SANS 10142-1	Perform daily maintenance, repair, and installation of electrical systems; diagnose equipment malfunctio	R 350,966 (Task Grade 9)	[1]

		switchgear maintenance			ns using test equipment and instruments		
Panel Wiring Training	St Peace College / City Power / CHIETA	Wiring a meter box, switchboard main system test, and identifying components; manual soldering and desoldering	NQF Level 2	SABS 0142, SETA (CHIETA) accredited	Practical assessment of existing electrician trade test panels; includes making terminations and tagging cables	R 10,000,000.00 (Proposed for training project)	[1]
Masters in electrical engineering	Atlantic International University (AIU)	Advanced Electromagnetic Theory, Digital Signal Processing, Control Systems Design, Advanced Communication Systems, Power Systems Engineering, Renewable Energy Systems, VLSI Design, Machine Learning	Level 9 (NQF)	Andragogic Studies, Open Academic Curriculum, US Accreditation (General mention)	100% Online Studies via Virtual Campus, 24/7 access, student and academic advisor custom-designed curriculum	150 USD Application/Enrollment Fee	[2]
Electrician Apprentice	National	Algebra, reading	2000 hours site training, 144	National Standard for	40 questions,	Minimum hourly rate	[2]

Assessment	Elevator Industry Education Program / NECA	comprehension, electrical theory, digital logic, transformer operating loss, CT theory	hours classroom theory	job roles	3-hour limit, 70% passing score required	pay for apprentices	
National Diploma in Electrical Engineering (N4, N5, N6)	DHET / St. Peace College / various workplaces	Mathematics, Industrial Electronics, Engineering Science, Electrotechnics	NQF Level 6, 360 Credits	SAQA ID: 90674, QCTO	Post-matric program requiring 18 to 24 months workplace experience for diploma eligibility	R 490 per month (example from Oxbridge)	[3]
Artisan-in-Training: Electrician	City Power Johannesburg (SOC) Ltd	Daily maintenance, repair and installation of electrical systems; LV and MV underground and overhead networks	Task Grade 9 (Minimum N2 Electrical Engineering)	SHEQ requirements, Electrical Trade Test Certificate	Diagnose equipment malfunctions; maintain motors, transformers and controllers; perform network operating	R 350 966 (Salary reference)	[3]
Dalkeith - Lutz 132kV Cable Project	City Power Johannesburg / Eskom	88kV/132kV cable supply, 2500mm² Aluminium XLPE cables, civil works, access ramp	Professional Engineering level	SANS 60840, NRS 077, SANS 10142-1, ISO 9001:2000	Construction of double circuit 200MVA firm supply; requires winch pulling, jointing,	R 40 000 000 (Maximum budget threshold reference)	[1.1 - 1.4], [3], [2.1 - 2.4], [4.1 -

		construction			and pressure testing		4.16]
N1-N3 National Certificates in Electrical Engineering	St. Peace College / DHET	Mathematics, Engineering Science, Industrial Electronics, Electrical Trade Theory, Engineering Drawing	NQF 1-3	SAQA, Umalusi, SANS 10142-1	Foundational competency in engineering fundamentals; application of science and math to innovation, design, and maintenance.	From R490 per month	[4]
Electrician (Shift Worker) / Artisan-in-Training	City Power Johannesburg	Daily maintenance, repair and installation of electrical systems; LV and MV underground and overhead networks; Transformers; Switchgear	N2 Electrical Engineering minimum	Electrical Trade Test Certificate, SHEQ, SANS 10142-1	Diagnose malfunctions using test equipment; work from drawings/sketches; perform network operating at all voltage levels.	R350 966 (Task Grade 9)	[4]
National N Diploma Engineering Studies: Electrical Engineering	Department of Higher Education and Training (DHET) / SAQA	Electrical Trade Theory, Electrotechnology, Industrial Electronics, Mathematics, Logic	NQF Level 6, 360 Credits	SAQA ID: 90674 / 111285, QCTO, SABS (Standard reference)	Installation and maintenance of electrical systems, motor winding, circuit design,	R5000 (copyright/textbook fees mentioned)	[5]

		Systems, Radio and TV Theory			PLC programming, and high voltage testing.		
Schneider Home Certification	Schneider Electric / Home and Distribution Academy	Installing and wiring Schneider Inverter, Boost, Pulse Backup Controller; Commissioning with eSetup App; Energy Monitoring	3 NABCEP CEU credits	Schneider Electric Standards	Installation and commissioning of home energy management systems, wiring of inverters and backup controllers.	R0.00 (Standard training listed in transcript)	[5]
Advanced Electrical Engineering in Construction	Atlantic International University (AIU)	Electrical Safety Standards, Smart Grids, Power Quality, Energy Management	Master's Level (Part of MSEE)	AIU Academic Freedom Standards	Integration of electrical systems in building design and infrastructure projects.	Partial Scholarship Application mentioned	[5]
National N Diploma: Electrical Engineering	St. Peace College / DHET	Mathematics, Engineering Science, Electrical Trade Theory, Industrial Electronics, Electrotechnics, Plant Operation	NQF Level 6, 360 Credits	SAQA, QCTO, DHET	18-24 months of relevant industry experience required for qualification issuance.	R12,000.00	[6]
EcoStruxure Automation	Schneider	Industrial Automatio	NQF Level 5 (Mapped)	IEC61499	Deployment of	R0.00 (Company	[7, 8]

Expert Regional Consultant	Electric	n, PLC configuration, Energy modeling			software-centric industrial automation systems and training internal teams.	Training)	
Azure AI Fundamentals	Microsoft	Generative AI, AI Basics, Responsible AI	4IR Skills	Microsoft Certification	Self-directed curriculum focused on the Microsoft ecosystem and AI deployment.	R1,500.00 (Gross), R1,000.00 (Final Balance after Grant)	[6]
Research & Policy Assessment	National Research Foundation (NRF) / IJETR	Rural electrification, microgrid optimization, smart grid stability	NQF Levels 7, 8, or 9 (Target)	ORCID, Peer-Reviewed	Systemic analysis of grid instability and curriculum reform proposals.	R500.00 (Publication fee); R20,000,000.00 (Proposed DTIC THRIP amount)	[6]
Madinda Utilities AMI Rollout	Madinda Utilities / City Power / Eskom	Advanced Metering Infrastructure, smart grid manufacturing, DLMS/COSEM-compliant hardware	NQF Level 6 (Inferred)	IEC 62056-5-3, DLMS/COSEM, SABS, NRS 049-2:2024	National rollout across 186 municipalities; revenue protection and automated load management	>$126M COP24 grant	[9]
Supply of Electricity to Rural Households in South Africa	NSF / DHET / Eskom	Renewable energy, Solar Home Systems (SHS),	Masters / Doctoral research levels	NSF CAREER Program Guidelines, Department of Energy	Installation and maintenance of off-grid systems;	$400,000 to $4,000,000	[10]

		small-scale hydropower, grid and off-grid systems		standards	goal to provide electricity to 10,000 households		
Operation GENIAC	SANDF / SAPS / DHET	Military combat engineering, tactical engineering (bridge building), infrastructure automation, generative AI	NQF Level 6-9	MIL-STD, ECSA, SAQA, PSIRA, SABS	Digitizing and automating public infrastructure assets; cybersecurity (ZTNA, NAC)	R40,000,000 to R50,000,000,000	[9]
National N Certificates (N1-N6) in Electrical Engineering	St Peace College	Electrical Trade Theory, Industrial Electronics, Electrotechnics, Mathematics, Engineering Science, Engineering Drawing	NQF Levels 4, 5, 6; 360 Credits total	SAQA (ID 6710, 63735, 67491), DHET, QCTO	Fundamental principles of engineering; Mastery of AC/DC theory, impedance, and power calculations	Net Cost: R610 (Education category)	[11]
Basic Electrical Safety	Sci-Bono Discovery Centre	Electrical Wiring Kit, Circuit Design & Analysis	SAQA/NQF Level 4, WA Code EA2	SAQA, NQF	Training in basic electrical safety and wiring kits; 3h library usage	R300 (Final Cost); R450 (Sale Price)	[11]
Rural Electrification Project (Proposal)	National Skills Fund (NSF) / Department of	Solar Home Systems (SHS), Mini-hydroelectr	Aligned with NATED N1-N6 pathways	Integrated Energy Plan, SANS compliance	Implementation of 50-watt SHS producing 0.3-0.4	Budget not to exceed R550,000.00 (VAT inclusive)	[11, 12]

	Energy	ical, Thermal generation			kWh/day for 10,000 households		
Masters Degree in Electrical Engineering	Atlantic International University (AIU)	Advanced Robotic Process Automation, Energy Storage and Battery Technology, specialist Engineering Infrastructure	Masters Level	AIU Internal Standards	100% Distance Learning; customized program outline; includes study on autonomous vehicles and drones	$150 USD Application/Enrollment Fee	[13]
On-the-Job Training/Mentorship	City Power, Eskom, MERSETA	Industrial maintenance support, motor winding, automation, robot integration	Apprenticeship/ Workplace readiness	QCTO, SETA accreditation	Synchronizing education systems with industrial needs; resolving maintenance problems and load-shedding impacts	Financial estimates linked to tendered bids and material resource capacity	[14]
Diploma in Electrical Studies	Alison (CPD UK Accredited)	Electrical wiring systems, residential wiring, hazards of electric power, device boxes	10–15 hours, Beginner Level	CPD UK	Self-paced; includes assessments requiring 80% pass rate; covers hand bending conduit and fittings	Free (Certificates available for purchase)	[14]
Senior Lecturer -	Department of	Engineering	Post Level PL2; Grade 12/N3	SACE (South African	Lecturer learning	R 353,979 per annum	[15]

Electrical Engineering	Higher Education and Training (DHET) / St. Peace College	Electrical, Technical Matric, Mathematics, Engineering Science, Industrial Orientation		Council for Educators), DHET	and work-integrated learning, curriculum implementation, student assessment		
Engineering Electrical Master	Atlantic International University (AIU) / St. Peace College	Electrostatic, Electrokinematic, Electrodynamics, Electromagnetic, Stability Power Systems, Industrial Electronics	Master level; NQF Level 7-9 (Graduate)	SAQA, ISO 9001 (referenced in IJETR)	Multidisciplinary approach to 3D engineering, system linearization, power system control stability	$40,000.00 (Minimum budget/grant reference)	[16]
Rural Electrification Initiative (NSF Career Proposal)	National Skills Fund (NSF) / City Power / Eskom	50-watt Solar Home Systems (SHS), hybrid PV-based systems, mini-hydroelectrical	Work-Integrated Learning (WIL) model	SANS compliance, SETA discretionary grants	Supply, delivery, and installation of equipment like vacuum autoclaves; local technician training on maintenance (TPM)	R550,000.00 (VAT inclusive)	[17]
Basic Electrical Safety Certificate	Sci-Bono Discovery Centre	Electrical Wiring Kit	SAQA/NQF Level 4	WA Code EA2	Hands-on project work involving wiring kits and safety protocols	R300 (Final Cost after R150 DHET Grant)	[17]
Labour Law Training /	SASSETA /	Labour relations,	NQF Level 5 (Moderator/Ass	MERSETA compliance	Training in labour law	R800 (Final Cost)	[17]

Workplace Dispute Resolution	CCMA	dispute resolution procedures	essor)	log	and disciplinary hearing procedures		
National Certificate in Electrical Engineering (N1)	St Peace College / DHET	Mathematics, Industrial Electronics, Engineering Science, Electrical Trade Theory	NQF 2 / N1 (120 Credits)	SAQA ID: 67109, Umalusi accredited	Foundational level learning mathematics, science, and drawing skills; research, design, install and test electrical and electronic equipment	Not in source	[1]
National Certificate in Electrical Engineering (N2)	St Peace College / DHET	Mathematics, Industrial Electronics, Engineering Science, Electrical Trade Theory	NQF 3 / N2 (120 Credits)	SAQA ID: 67375, Umalusi accredited	Builds on N1 skills; preparation for working as an artisan with electrical circuits	Not in source	[1]
National Certificate in Electrical Engineering (N3)	St Peace College / DHET	Mathematics, Industrial Electronics, Engineering Science, Electrical Trade Theory or Electro-technology	NQF 4 / N3 (120 Credits)	SAQA ID: 67491, Umalusi accredited	Preparation for career as an artisan; covers industry practices and administrative procedures	Not in source	[1]
National N Diploma in Engineering	St Peace College	Electrical Engineering,	NQF Level 6 (360 Credits)	SAQA ID: 90674 / 67043	Requires completion of N4, N5,	Not in source	[1]

Studies	/ DHET	Electrotechnics, Power Machines, Industrial Electronics, Control Logic			N6 plus 18 to 24 months of relevant experientia l work in industry		
National N Certificate / Diploma in Engineering Studies (Electrical Engineering)	Department of Higher Education and Training (DHET) / St. Peace College / Shalom Technical College	Industrial Electronics, Engineering Drawings, Electrical Trade Theory, Mathematics, Engineering Science, Electro-Technology, Plant Operation Theory	NQF Levels 1-6; 360 Total Credits for Diploma	SAQA, QCTO, Umalusi, SABS 0142 (Wiring Code), ICASS Guidelines	Theoretical Pass (4 subjects) and 18-24 months practical workplace experience required for diploma qualification	Not in source	[2]
Licensed Electrician Assessment / Trade Test	Quality Council for Trades and Occupations (QCTO) / City Power / Eskom	Panel wiring, electrical switch (one/two way), relay motor, fault finding, circuit design, installation practices	Trade Test Readiness	SABS 0142, Department of Labour Occupational Health and Safety Act	Practical assessment in workshop, checking final assembly for conformance, diagnosing and repairing analogue equipment	Not in source	[2]
Electronic Security Industry Skills Programme	SASSETA / PSIRA	Electrical safe working practices, cabling	Credits vary by unit standard	PSIRA (Private Security Industry Regulatory	Configure installation, assess security threats,	Not in source	[2]

(Installer/Technician)		methods, electronics system elementary, radio transmitter and antenna installation, CCTV, access control, fire detection		Authority) Code of Conduct	rectify faults, provide customer service		
Supply and Delivery of Vacuum Autoclaves Project	National Department of Health (NDOH)	RDX 320 Vacuum Autoclaves maintenance and delivery	Not in source	Class B, SABS/ISO (Inferred)	Supply, deliver and off-load 39 units; 23-inch water-fill model	R 550,000.00	[2]
National Certificate in Electrical Engineering (N1, N2, N3)	Department of Higher Education and Training (DHET) / Umalusi	Mathematics, Industrial Electronics, Engineering Science, Electrical Trade Theory, Engineering Drawing	NQF 1, 2, 3	SAQA, Umalusi, SANS 10142-1	Foundational competency in Electrical Engineering fundamentals; research, design, install and test electrical equipment	Not in source	[3]
Graduate Internship / Engineering Graduates in Training	City Power / Engineering Council of South Africa (ECSA)	Electrical Power Systems Engineering (Heavy/Light Current); Road to Recruitme	Electrical Engineering Degree	ECSA, SAQA	On-the-job training to produce certified engineers; rotation through depots and engineering services	Not in source	[3]

		nt initiative					
Panel and Control Wiring Training	St. Peace College / CHIETA / MERSETA	Panel wiring, DB box, outlet socket, switch dol motor, transformer installation	Level 2, 3	SABS 0142, SAQA, QCTO	Practical workshop training for installation and maintenance in mining, chemical and energy sectors	Not in source	[3]
SAPS Radio Technical Unit Training	South African Police Service (SAPS) / Division: Technology Management Services	Radio Installation, Frequency Modulation Principles, Basic Electronics, Communication Monitor, Oscilloscope	NQF 6 or NQF 4 or N3	SAPS Recruitment Standards, Vetting Process	Repairs, installation and preventative maintenance of radio equipment and infrastructure at SAPS High Sites	Not in source	[3]
N4-N6 National Certificates in Electrical Engineering	St. Peace College / DHET	Mathematics, Engineering Science, Industrial Electronics, Electrotechnics	NQF 4-6; 360 Credits for National Diploma	SAQA, QCTO, Umalusi	Post-matric programme requiring 18 to 24 months of work experience for National Diploma qualification.	Not in source	[4]
Occupational Exposure Level Survey	SAPS (Division: Detecti	Forensic science laboratory; Criminal	Not in source	Occupational Health and Safety Act 85 of 1993	Five and six monthly services	R1 000 000 (Bid Price)	[4]

(Tender)	ve and Forensic Services)	record and crime scene management; Health and Safety surveys			for contract period (3 years) at national forensic labs.		
Panel Wiring / Electrical Infrastructure	St. Peace College / CHIETA SETA	Panel wiring, control wiring, DB box, outlet socket, switch, DOL motor, transformer	NQF Level 2, 3, 4	SAQA, CHIETA, Merseta (17-QA/ACC/1311/17)	Practical training in wiring of premises; inspection and maintenance of control panels and circuits.	Not in source	[4]
Smart Prepayment Split Metering / Split Meter Program	Eskom / City Power	Smart prepaid meters, Customer Interface Unit (CIU), two-way communication, energy management	Not in source	SABS, NERSA	Rolling out smart meters in Sandton; empowering consumers to control consumption; remote display and programming updates.	R1 200 (Supply cost per connection)	[4]
Dalkeith-Lutz 132kV Cable Project	City Power / Eskom	88kV/132kV XLPE Single Core Cable, Joint Bay Layout, Earthing Detail, Fibre Optic Draw Pit	Not in source	SANS 60840, NRS 077, SANS 10142-1	Construction of double circuit 200MVA firm 88kV cable supply; 4800 meters route length; 6x single core 2500mm2 Aluminiu	R40 000 000 (Maximum Project Budget)	[4]

					m XLPE cables.		
Electrical Engineering Degree / Graduate in Training	South African Universities / City Power	Heavy/Light Current, Circuit Design, Java Programming, Power Station Transmission, Distribution	NQF Level 7/8	ECSA (Engineering Council of South Africa)	Focus on theoretical and academic research, project management, and overseeing manufacturing processes.	Not in source	[4]
Advanced Diploma in Basics of Electrical Technology and Circuit Analysis	Alison (Online)	Circuit analysis, resistor types, prevention of electrical shocks	Not in source	Alison Certification	Analyzing electrical circuits and safety measures against shocks.	Free (platform mentioned as free online courses)	[5]
Diploma in Power System Protection - An Introduction	Alison (Online)	Power System Protection, Fault Analysis	Not in source	Alison Certification	Introduction to protecting electrical grids and managing system faults.	Free	[5]
On-the-job Training: Electrical Material Design & Inspection	St. Peace College / MERSETA / City Power	Panel wiring, inspection of electrical systems, wiring design, material design for components	NQF Level 4 (Entrance) to Level 6	MERSETA 17_QA/ACC/1311/17, SAQA	Practical activities include DB Board wiring, fault-finding in electrical machines, and substation maintenance.	Not in source	[5]
Official ISC2	ISC2	Security Principles,	Not in source	ISC2 Standards	Protecting IT	$24.95 (eTextbook	[5]

Certified in Cybersecurity (CC)		Incident Response, Business Continuity, Access Control, Network Security			infrastructure, managing risk, and securing network communications.	price)	
Master of Science in Electrical Engineering (MSEE)	Atlantic International University (AIU)	Electrostatic, electrodynamic, and electromagnetic principles; Renewable energy integration; AI in power grids	Masters (Research based)	AIU Standards	Design and innovation of fundamental power systems; Industrial power efficiency enhancement.	Not in source	[5]
Project-22: EcoStruxure Control Expert License	Schneider Electric / Tshingombe Engineering	Control Engineering, Topology Manager, M580 Safety	Not in source	Industrial Automation Standards	Software license for 10 users, node locked, digital implementation for M580 safety systems.	R 261 204,87	[5]
National Certificate: Electrical Engineering (ID 72071)	SAQA	Design and install electrical wire ways	NQF Level 3, 8 Credits	SAQA, SANS 10142-1	Standardized unit standard for electrical installation competence.	Not in source	[7, 18]
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Based on 38 sources

Qualification or Project Title	Institution or Platform	Field of Study	NQF Level or Credential ID	Status or Achievement	Date or Duration	Key Competencies and Skills	Source
National N Diploma: Electrical Engineering	St Peace College	Electrical Engineering	NQF Level 6 (SAQA ID: 66994 / 90674)	Awarded / Certified	24 Months Practical Experience	Mathematics (N1-N6), Engineering Science, Electrical Trade Theory, Industrial Electronics, Electrotechnics, Plant Operation	[1]
Web-Based Crime Management System	Qeios / Research Article	Computer Science / Information Systems	https://doi.org/10.32388/JGU5FH	Published (Preprint)	Dec 11, 2023	Online crime reporting, database retrieval, client-server architecture, PHP, MySQL, HTML, JavaScript, XAMPP, System Analysis & Design (UML)	[2], [3]
Cloud & Data Engineering (Microsoft)	Microsoft Learn	Data & AI	MCID: 99587175	Completed / Certified	Nov 2023 - May 2024	Azure AI Search, Image Classification, PyTorch, Azure Machine Learning,	[1]

						Microsoft Fabric, Power BI	
Microsoft Learn Portfolio	Microsoft Learn	AI and Cloud Computing	Level 17 (1,483,625 XP)	943 Badges, 215 Trophies	Ongoing	AI basics, Generative AI, Azure AI Foundry SDK, MLflow, GitHub Administration, Copilot productivity	[2]
Industrial Automation & PLC Training	Schneider Electric	Industrial Automation	Schneider Electric ID: 607069d9-fa26-423a-9d8c-d810df173a87	Certified (140+ modules)	Fiscal Year End 12/31/2025	PLC configuration, EcoStruxure Power, Drives fundamentals, Kinematic calculation, Modicon Switches	[1]
Registered SASSETA Assessor & Moderator	SASSETA / PSiRA	Technical Assessment	ID Number: TIRCG00091061010	Registered / Certified	December 2024	Engineering Fabrication, Security Management Electronics, Curriculum Design, Moderation Reports	[1]
National Certificate Engineering Studies (N1-N6)	St Peace College	Electrical Engineering	SAQA ID 6710, 637375, 67491	Completed	Not in source	Electrical Trade Theory, Industrial Electronic	[4]

						s, Electrotechnics	
Diploma in Engineering Electrical	ST Peace College	Electrical Engineering	N4 / NQF Level 5	Eligible / Recorded	Not in source	Panel Wiring, Electrical Trade Theory, SAQA Mapping	[2]
Basic Electrical Safety	Sci-Bono Discovery Centre	Electrical Trade	SAQA/NQF Level 4, WA Code EA2	Certified	2025-10-08	Electrical Wiring Kit, Safety Protocols	[4]
Electronics Fundamentals	Shoprite / CNA / Elektor	Electrical Engineering	SAQA/NQF Level 4	Certified	2025-10-08	Elektor Starter Kit	[4]
Information Management System (IMS) Prototype	National Curriculum Architecture	Information Systems	Modular Framework Kfrm1-Kfrm6	Inventor / Prototyped	Jul 23, 2025 (Updated)	Secure registration, biometric validation, credential handling, Visual Basic (VB) architecture	[2]
Support for Energy-Efficient Electrical & Industrial Systems (S.E.E.E.I.S.U.A)	Internal Research	Power Systems & Regulation	Not in source	Strategic Proposal	2023-2025	MIL-STD compliance (810, 461, 882), Industrial Metering, Load Shedding simulation	[5]
Smart Grid & AI Integration Research	IEEE 2030 / ISO 27001 Alignment	Electromechanics & AI	DL SGWD-AI	Active Framework	Not in source	Fault isolation, predictive maintenance, load forecasting, VBA	[2]

						logigramm design	
ABS/ASR/ESP Training Board	DL Workspace	Automotive Engineering	NSQF Level 5	Prototyped	Not in source	Braking logic, OBD-II diagnostics, 32-bit microcontroller logic, hydraulic modulation	[2]
MBM302 Master Thesis Review	Atlantic Intl. University	Engineering Systems	IJETR3156	Thesis Accepted	2025-10-08	LMS + AIU Library	[4]
Google Classroom Fundamentals	Google	Education Technology	Certificate ID: 2802By71CB4243E14290	Completed	October 26, 2023	Digital learning tools, LMS Management	[6]
ISO 37301:2021 Principle of Compliance Management System	Alison	Compliance Management	Not in source	Certified (91% Score)	April 2025	Compliance management, regulatory alignment	[1]
Cyber Essentials Plus	BlockMark Registry	Cybersecurity	Not in source	Verified (Valid to 2025-12-13)	Valid until 2025-12-13	Compliance with UK cybersecurity standards	[4]
AI-Powered Cybersecurity Fundamentals	Alison	Cybersecurity	Not in source	Certified	Not in source	Threat detection, AI in diagnostics	[4]
Data Engineer Associate	Microsoft Azure	Data Engineering	Not in source	Certified	Not in source	Azure Synapse, Data Engineering on Azure	[4]
CI/CD	GitHub /	Software	Trailblazer	Data	2025-	GitLab	[4]

Pipeline Subscription	Azure DevOps	Development	Superbadge	Cloud Certified	10-08	audit log	
Smart Panel Project	Schneider Electric	Energy Management	Not in source	Energy Mgmt Compliance	2025-10-08	GitLab + Azure DevOps billing portal	[4]
Schneider Home Certification	Schneider Electric	Energy Automation	Not in source	In Progress	Not in source	Schneider Inverters, Pulse Backup Controller, Load Control, Commissioning Smart Panels	[2]
Diploma in Robotics	Alison	Intelligent & Automated Systems	Not in source	Certified	Not in source	Kinematic movement (X, Y, Z), Servo mechanisms	[4]
Diploma in Teaching Skills for Educators	Alison	Education & Pedagogy	Not in source	Certified	Not in source	Constructivism, Behaviourism, Motivation Theory	[4]
Engineer Registration	ECSA / Home Affairs	Professional Engineering	Not in source	Registered Professional Engineer	2025-10-08	Professional standing, good conduct	[4]
Labour Law Training	SASSETA / CCMA	Legal & Labour Compliance	Not in source	Workplace Dispute Resolution	2025-10-08	MERSETA + Home Affairs compliance log	[4]
NSF Career Proposal for Rural Electrificati	National Skills Fund (NSF)	Renewable Energy	Not in source	Submitted	Budget: R550,000.00	Solar Home Systems (SHS),	[4]

on						Battery Storage	
Experimental Career Thesis	Kananga	Academic Research	Kananga5	Not in source	23/04/2024	Cybersecurity, thesis development	[2]
Thesis: Research policy trade theory minimum	F1000Research	Education Technology	Not in source	Rejected	24 Jan 2025	Curriculum Design, TVET Reform	[1]
Engineering Science	Not in source	Engineering	N3	Passed	Not in source	Industrial engineering fundamentals	[2]
Engineering Drawing	Not in source	Engineering	N3	Passed	Not in source	Technical drawing and design	[2]
Industrial Electronics	Not in source	Engineering	N3	Passed	Not in source	Electronic systems and components	[2]
Diesel Trade Theory	Not in source	Engineering	N3	Passed	Not in source	Diesel engine mechanics	[2]

[1] new career engineering.pdf
[2] UserForm 90004444 career totand and trade portoloio.frm1.pdf
[3] UserForm17 police student registrar tshingombe tank ,,career.frm3.pdf
[4] new 3career engineering3.pdf
[5] 🗏 Technical Report TitleSHINGOMBE OPGENIAC.docx

Based on 38 sources

Qualification or Project Name	Institution or Platform	Status or Result	Domain/Subject Area	Credential ID or Reference	Date	Core Competencies Involved	Source
National N	St Peace	Comple	Electrical	SAQA ID: 66994 /	2024-	Mathematics	[1],

Diploma: Engineering Studies (Electrical Engineering)	College / DHET	ted	Engineering	90674 / 111285 / MERSETA 17_QA/ACC/1311/17	02-12	N6, Engineering Science N4, Electrical Trade Theory, Industrial Electronics, Electrotechnics, Plant Operation, Power Machines, N4-N6 Engineering studies	[2], [3]
SASSETA Assessor & Moderator Certificate	SASSETA / PSiRA	Certified	Pedagogy / Security	ID Number: TIRCG00091061010	2024-12-22	Assessment Moderation, Engineering Fabrication, Security Management Electronics	[3]
N3 Engineering Studies	St Peace College / DHET	Completed	Electrical Engineering	SAQA ID 67491	2023	Electro-Technology (Pass 55%), Industrial Orientation (Pass 48%)	[2]
National Certificate: Electrical Engineering (Mining)	SAQA	Completed	Electrical Engineering	SAQA ID 72071	Not in source	NQF Level 3, 133 Credits	[3]
Engineering Electrical Learnership	St Peace College & Affric Police Institute	Completed	Electrical Engineering	SAQA ID 67109	Not in source	Panel Wiring, Electrical Trade Theory, NQF Level 5	[1]
N2 Engineering Studies	St Peace College	Completed	Electrical Engineering	SAQA ID 637375	Not in source	Electrical Trade Theory, Industrial Electronics	[2]
N1 Engineering Studies	St Peace College	Completed	Electrical Engineering	SAQA ID 6710	Not in source	Foundational Electrotechnical Principles	[2]

Certificate in Electrical (Safety, Design & Sockets)	St Peace College	Completed	Electrical Engineering	Not in source	2020	Safety, Design & Distribution Boards, Sockets	[2]
Industrial Automation & PLC Training	Schneider Electric	Completed	Electrical Engineering	Schneider ID: 607069d9-fa26-423a-9d8c-d810df173a87	Not in source	PLC configuration, EcoStruxure Power, Energy modeling	[3]
Smart Panel Project	Schneider Electric	Certified	Energy Compliance	Not in source	2025-10-08	Energy Mgmt Compliance, Git+Azure DevOps billing portal	[2]
Altivar Machine Professional	Schneider Electric	Certified	Automation & Drives	Not in source	Not in source	Variable Speed Drives, Altivar ATV340/320	[1]
ASHE: Energy Manager	Schneider Electric / ASHE	In Progress	Energy Management	C001	Not in source	IPMVP, power factor analysis	[1]
Schneider Home Certification	Schneider Electric	In Progress	Electrical Engineering / Automation	Not in source	Not in source	Inverters, Boost, Pulse Backup Controller, Load Control	[1]
Basic Machines with PacDrive 3	Schneider Electric	Rejected	Automation	C003	Not in source	Motion control, robotics	[1]
Cloud & Data Engineering / Microsoft Certifications	Microsoft Learn / Microsoft	Certified	AI & Data Science	MCID: 99587175	Not in source	Azure Synapse, Serverless SQL, Data Engineering, Azure OpenAI Service, RAG, Machine Learning	[2], [3]
Microsoft	Microsoft	Certifie	AI	Trophy ID 215	Not in	Generative	[1]

Learn AI Fluency	Learn	d			source	AI, responsible AI, Azure AI Foundry	
Web-Based Crime Management System for Samara City Main Police Station	Qeios	Rejected	AI / Information Systems	doi.org/10.32388/JGU5FH	Dec 11, 2023	Computer Science, Information systems, Open Peer Review	[1]
Master Thesis Review (MBM302)	Atlantic International University	Completed	Engineering Systems	IJETR3156 - Accepted	2025-10-08	Master of Eng. Systems	[2]
From Idea to Reality: A Comprehensive Guide to Setting Up Your Own Company	Atlantic International University (AIU)	Completed	Entrepreneurship	Not in source	2023-10-13	Business Engineering, Marketing Engineering	[3]
NSF I-Corps Program Application	National Science Foundation (NSF)	Rejected	Technological Innovation / Research Funding	Not in source	2025-02-14	AI-Based Predictive Maintenance in Industrial Systems, Technology Commercialization	[2], [3]
NRF Grant Application	National Research Foundation (NRF)	In Progress	Engineering	Ref: PSTD25041131029 1	10/04/2025 (Applied)	Nanostructured Materials and Packaging	[2]
F1000Research Article Submissions	F1000Research	Rejected	Research	Submission 161981	Jan 2025	career project implementation framework design	[2]
Master career mentor	F1000Research	Rejected	Electrical Engineering	Not in source	2025-04-11	Engineering Research	[3]

discovery energy rural engineering							
Thesis: Research policy trade theory minimum	F1000Research	Rejected	Pedagogy	Not in source	2025-01-24	Educational Research	[3]
Cyber Essentials Plus Certification	BlockMark Registry	Certified	Cybersecurity	Not in source	Valid to 2025-12-13	UK cybersecurity standards compliance	[2]
Google Classroom Fundamentals	Google Classroom	Completed	Pedagogy	Certificate ID: 2802By71CB...	2023-10-26	LMS Management	[4]
Diploma in Teaching Skills For Educators	Alison	Certified	Pedagogy	Not in source	Not in source	Constructivism, Behaviourism, Motivation Theory	[2]
ISO 37301:2021 principle of compliance management system	Alison	Certified	Compliance Management	Not in source	Not in source	Regulatory Compliance	[3]
Labour Law Training	SASSETA / CCMA	Completed	Legal & Compliance	Not in source	2025-10-08	Workplace Dispute Resolution, MERSETA + Home Affairs compliance log	[2]
IT Asset Management Administrator (Ref 1165)	South African Reserve Bank (SARB)	In Progress	BSTD	1165	09/02/2025	Compliance automation, asset lifecycle tracking	[1]

Applications Design Lead (Ref 904)	South African Reserve Bank (SARB)	In Progress	BSTD	904	09/02/2025	Modular systems architecture, VBA frameworks	[1]
Associate Resolution Planning Specialist (Ref 1208)	South African Reserve Bank (SARB)	In Progress	Financial Stability (Fin Stab)	1208	09/02/2025	Risk-based compliance, systemic reform	[1]
Graduate Development Programme (Ref 914)	South African Reserve Bank (SARB)	Rejected	General	914	Not in source	Senior profile misalignment	[1]
Ford Motor Company (Multiple Roles)	Ford	Rejected	Automotive Engineering	Not in source	2013-2024	Systems Engineering, Thermal Systems Integration	[2]

[1] UserForm 90004444 career totand and trade portoloio.frm1.pdf
[2] new 3career engineering3.pdf
[3] new career engineering.pdf
[4] tshingombe tshitadi engineering and education technolo

Based on 50 sources

ID	Title	Work Item Type	Project or Category	Technology /Tools	Assigned To	Description (Inferred)	Source
2461	Implementation and framework national qualification	Requirement	Trade Theory Labs	Excel, VBA	Tshingombe Tshitadi Fiston	Master engineering thesis proposal addressing national trade examination curriculum and	[1, 2]

							experimental facilities.	
1165	IT Asset Management Administrator	Application	BSTD	Excel/VBA	Tshingombe Tshitadi Fiston		Active job application targeting compliance automation and asset lifecycle tracking within the Business Systems and Technology Department.	[3]
904	Applications Design Lead	Application	BSTD	Visual Basic / VBA Frameworks	Tshingombe Tshitadi Fiston		Job application focused on modular systems architecture and the design of institutional information management frameworks.	[3]
675	Senior Applications Functional Specialist	Application	BSTD	Audit trail logic (VBA)	Tshingombe Tshitadi Fiston		Application highlighting cross-functional integration and the	[3]

						implementation of automated audit trail logic.	
1208	Associate Resolution Planning Specialist	Application	Fin Stab	Risk-based compliance logic	Tshingombe Tshitadi Fiston	Specialist role dealing with financial stability, systemic reform, and mapping controls to resolution playbooks.	[3]
1222	Contractor - Associate Investigator	Application	General / Criminal Records	Evidence mapping tools	Tshingombe Tshitadi Fiston	Investigation-focused role involving the mapping of evidence and integration of legal workflows.	[3]
10563	Investigator: Digital Forensics	Application	Tax Crime & Intelligence	Forensic hooks / Evidence mapping	Tshingombe Tshitadi Fiston	Investigative position requiring the mapping of digital evidence and forensic technical integratio	[3]

						n.	
10506	Revenue Analyst	Application	Finance & Analytics	Budget modeling / Compliance scoring	Tshingombe Tshitadi Fiston	Role involving budget modeling and the development of compliance scoring systems for SARS.	[3]
85	engineering trade programe	Work Item	Trade Theory Labs	Azure DevOps Boards	Tshingombe Tshitadi Fiston	Technical component focusing on trade program requirements within engineering.	[4]
84	nrf engineering	Project Requirement	Trade Theory Labs	Azure DevOps Boards	Not in source	Engineering requirement related to NRF (National Research Foundation) funding and project management.	[4, 5]
83	engineering nated nvc excell research tvet	Research Requirement	Trade Theory Labs	Excel, TVET Systems	Tshingombe Tshitadi Fiston	Research work item and engineering tasks focusing on vocational engineering research	[4, 5]

						and TVET standards.	
82	engieering visual excell ms word	Technical Component	Trade Theory Labs	Excel, MS Word, Visual Basic	Tshingombe Tshitadi Fiston	Technical work item for creating documentation and engineering tools using office automation and Visual Basic scripting.	[4, 5]
81	enginering visual basic	Software Function	Trade Theory Labs	Visual Basic	Tshingombe Tshitadi Fiston	Development of engineering software functions and data systems using Visual Basic architecture.	[4, 5]
80	engineering visual basic data system	Technical Component	Trade Theory Labs	Visual Basic	Tshingombe Tshitadi Fiston	Architecture and design of an engineering information management system using modular VB logic.	[4, 5]

79	engineering visual basic	Software Function	Trade Theory Labs	Visual Basic	Tshingombe Tshitadi Fiston	Software component for modular VB framework and event-driven subroutines within general engineering.	[4, 5]
78	engineering excell visual basicts	Technical Component	Trade Theory Labs	Excel, Visual Basic	Tshingombe Tshitadi Fiston	Integration of Excel spreadsheets with Visual Basic scripts for technical automation and engineering work.	[4, 5]
74	engineering data system	Technical Component	Trade Theory Labs	Azure DevOps, SQL	Tshingombe Tshitadi Fiston	Implementation and architecture of an audit-ready information delivery system for professional certification.	[4, 5]
69	enginnering tshingombe	Training Material	Trade Theory Labs	Not in source	Tshingombe Tshitadi Fiston	Curriculum assessment material for trade and	[4]

77	engineering tshingombe	Engineering	Trade Theory Labs	Not in source	Tshingombe	engineering education reports.	[5]
68	engineering alison	Training material	Trade Theory Labs	Alison (LMS)	Not in source	Engineering course material or certification tracked from the Alison platform.	[5]
67	engineering alison master	Training material	Trade Theory Labs	Alison (LMS)	Not in source	Advanced engineering mastery or master certification requirements via Alison.	[5]
86	discovery career science technical engineering	Engineering Work Item	General Engineering	Azure DevOps Boards	Tshingombe Tshitadi Fiston	Engineering work item for career discovery in technical and science fields.	[4]
Not in source	Triangle Wave Generator	Software Function	Trade Theory Labs	Visual Basic	Tshingombe Tshitadi Fiston	A functional script (VBA function	[3, 6, 7]

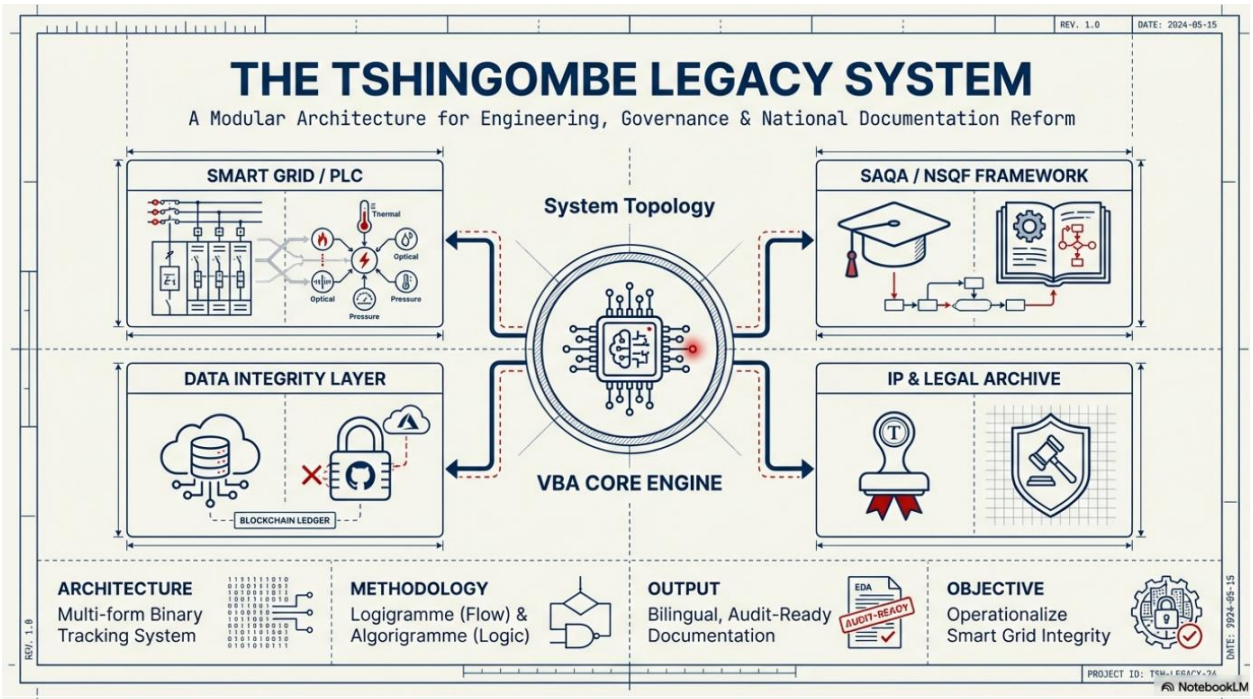
						Tri_Wave) designed to generate triangle waveforms based on time and voltage for engineering simulation.	
Not in source	GenerateSHA256	Software function	Trade Theory Labs	Visual Basic	Tshingombe	Security component to generate SHA256 hashes for data integrity in technical documentation.	[6, 8]
002	WRITE DATA TO PLC	Software Function	Trade Theory Labs	C#, PLC Communication Programme	TSHINGOMBE@GMAIL.COM	Technical component for writing command data to a PLC via C# programming using base address 0002.	[9]
1514697	THREE PHASE AC STATIC WATT HOUR SMART	Technical Component	Trade Theory Labs	GPRS Module, LCD Display	Not in source	Class 0.5 static watt hour meter with metering algorithm	[9]

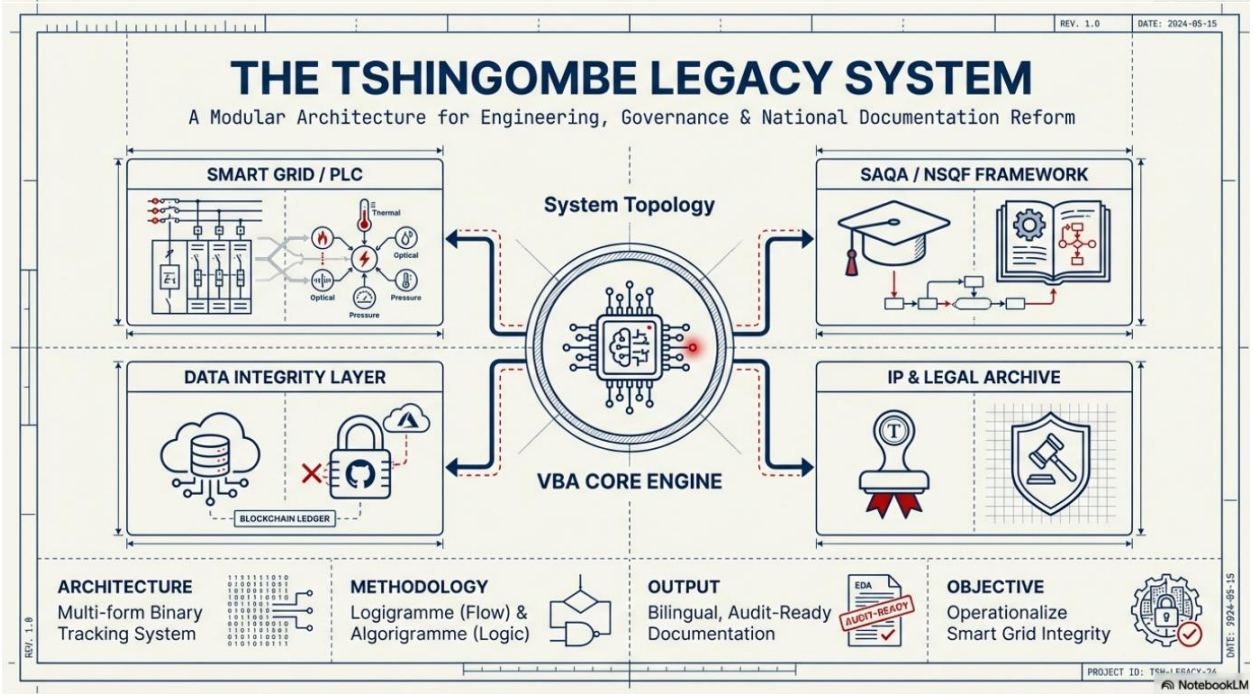
	METER					s and tamper detection.	
23	Private sub button 23 _click	Software Function	Trade Theory Labs	Visual Basic	Not in source	UI element click event handler for processing operands in a calculator interface.	[9]
16	Table16	Technical Component	Trade Theory Labs	Excel, Macro	Not in source	Excel list object created via Macro1 for data sheet management.	[9]
Not in source	Kfrm1: Initial Registration	Software Module	Information Management System	Visual Basic / COM Controls	Tshingombe Tshitadi Fiston	The primary user interface form for the IMS prototype, capturing name, ID, and contact details for institutional onboarding.	[3]
Not in source	TextBox9 Fault Capture	UI Component	Substation Automation	Visual Basic / IEC61850	Not in source	A text input element within a UserForm	[3]

						designed to capture and validate protocol strings such as IEC61850 or fault codes like FDR-TRP.	
1042024CIV004539	tshingombe tshitadi	Civil Law Case	Criminal Records	DOJ Online System	tshingombe tshitadi	Civil law application for case status screening within the Department of Justice online portal.	[1]
1042024CIV004511	tshingombe tshitadi	Civil Law Case	Criminal Records	DOJ Online System	tshingombe tshitadi	Screening application for a civil case record on the DOJ dashboard.	[1]
112024CIV000013	tshingombe tshitadi	Civil Case	Criminal Records	DOJ Online System	tshingombe tshitadi	Automated system entry for a civil law case tracking record.	[1]
4702024FCV001046	Tshingombe Tshitadi	Protection Order Requirement	Criminal Records	DOJ Online System	tshingombe tshitadi	Domestic violence protection order application currently	[1]

						in the screen applicatio n phase.	
Uc21	Register complaint	Require ment	Crimina l Records	PHP, MySQL	Criminal Preventive Police	Requirem ent to allow police to register crime complaint s in the automated system.	[10]
Uc28	Register employee	Softwar e function	Crimina l Records	XAMPP Server, MySQL	Human Resource Manager	Admin function to register police station workers into the database.	[10]

[1] tshingombe REPUBLIC OF SOUTH AFRICA.docx
[2] tshingombe rural energy Items written by EN0202272ID_ Elektor _ Elektor Magazine.pdf
[3] UserForm 90004444 career totand and trade portoloio.frm1.pdf
[4] Work items - Boards azure.pdf
[5] Work items - Boards azure tshingombe.pdf
[6] TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE,,, framework.pdf
[7] trade electrical theoretical practic form tshing.pdfsubstation transmission workbase experiemental carer ,.pdf
[8] UserForm1 5tshingombe atm.pdf
[9] Doc13 design tshing.docx


REV. 1.0
DATE: 2024-05-15
THE TSHINGOMBE LEGACY SYSTEM
A Modular Architecture for Engineering, Governance & National Documentation Reform
SMART GRID / PLC
Thermal
Optical
Optical
Pressure
Pressure
System Topology
SAQA / NSQF FRAMEWORK
DATA INTEGRITY LAYER
BLOCKCHAIN LEDGER
VBA CORE ENGINE
IP & LEGAL ARCHIVE
ARCHITECTURE
Multi-form Binary Tracking System
METHODOLOGY
Logigramme (Flow) & Algorigramme (Logic)
OUTPUT
Bilingual, Audit-Ready Documentation
EDA
AUDIT-READY
OBJECTIVE
Operationalize Smart Grid Integrity
REV. 1.0
DATE: 2024-05-15
PROJECT ID: TSH-LEGACY-24
NotebookLM


REV. 1.0
DATE: 2024-05-15
THE TSHINGOMBE LEGACY SYSTEM
A Modular Architecture for Engineering, Governance & National Documentation Reform
SMART GRID / PLC
Thermal
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System Topology
SAQA / NSQF FRAMEWORK
DATA INTEGRITY LAYER
BLOCKCHAIN LEDGER
VBA CORE ENGINE
IP & LEGAL ARCHIVE
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Logigramme (Flow) & Algorigramme (Logic)
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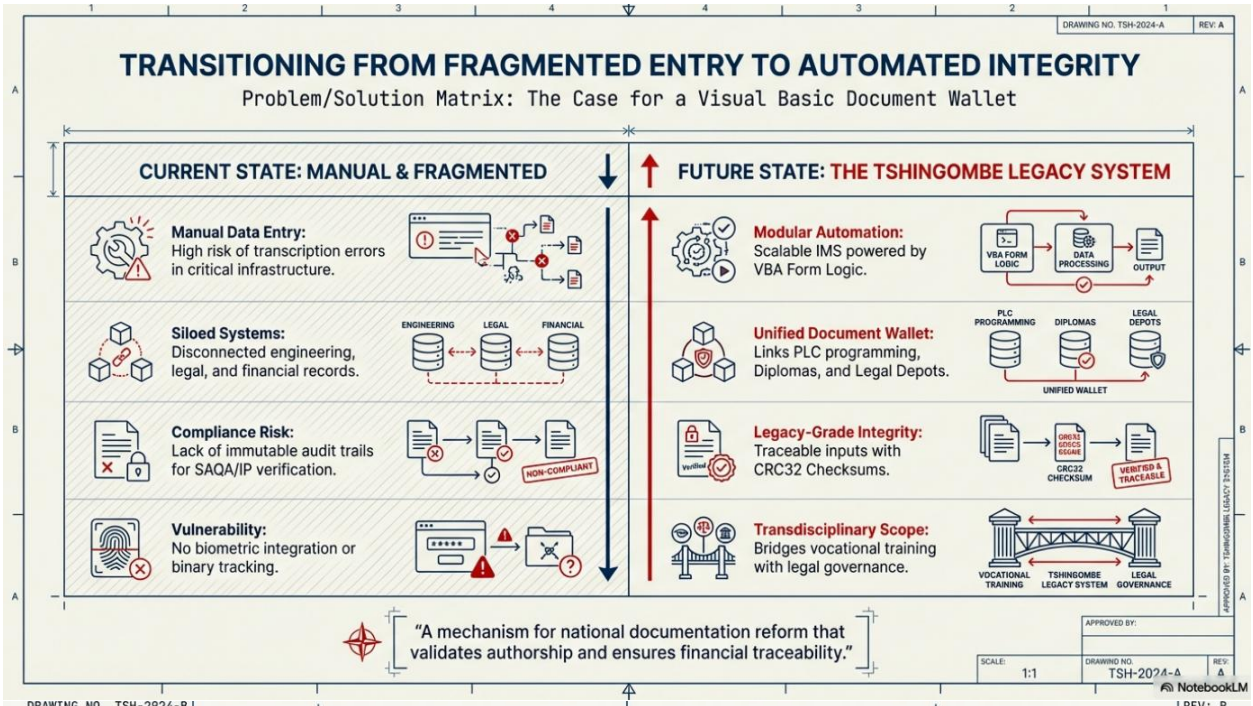
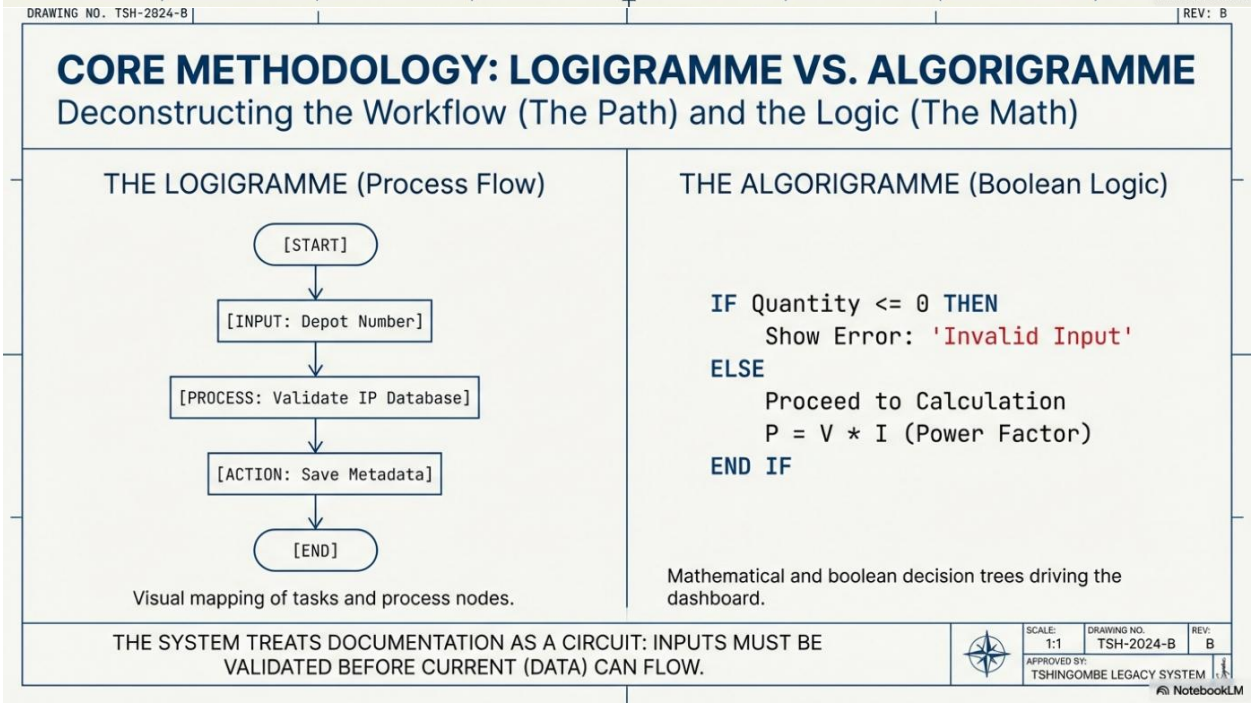
EDA
AUDIT-READY
OBJECTIVE
Operationalize Smart Grid Integrity
REV. 1.0
DATE: 2024-05-15
PROJECT ID: TSH-LEGACY-24
NotebookLM


DRAWING NO. TSH-2024-A
REV: A
TRANSITIONING FROM FRAGMENTED ENTRY TO AUTOMATED INTEGRITY
Problem/Solution Matrix: The Case for a Visual Basic Document Wallet
CURRENT STATE: MANUAL & FRAGMENTED
FUTURE STATE: THE TSHINGOMBE LEGACY SYSTEM
Manual Data Entry:
High risk of transcription errors in critical infrastructure.
Siloed Systems:
Disconnected engineering, legal, and financial records.
ENGINEERING
LEGAL
FINANCIAL
Compliance Risk:
Lack of immutable audit trails for SAQA/IP verification.
NON-COMPLIANT
Vulnerability:
No biometric integration or binary tracking.
Modular Automation:
Scalable IMS powered by VBA Form Logic.
VBA FORM LOGIC
DATA PROCESSING
OUTPUT
Unified Document Wallet:
Links PLC programming, Diplomas, and Legal Depots.
PLC PROGRAMMING
DIPLOMAS
LEGAL DEPOTS
UNIFIED WALLET
Legacy-Grade Integrity:
Traceable inputs with CRC32 Checksums.
CRC32 CHECKSUM
VERIFIED & TRACEABLE
Transdisciplinary Scope:
Bridges vocational training with legal governance.
VOCATIONAL TRAINING
TSHINGOMBE LEGACY SYSTEM
LEGAL GOVERNANCE
"A mechanism for national documentation reform that validates authorship and ensures financial traceability."
APPROVED BY:
SCALE: 1:1
DRAWING NO. TSH-2024-A
REV: A
NotebookLM


DRAWING NO. TSH-2024-B
REV: B
CORE METHODOLOGY: LOGIGRAMME VS. ALGORIGRAMME
Deconstructing the Workflow (The Path) and the Logic (The Math)
THE LOGIGRAMME (Process Flow)
[START]
[INPUT: Depot Number]
[PROCESS: Validate IP Database]
[ACTION: Save Metadata]
[END]
Visual mapping of tasks and process nodes.
THE ALGORIGRAMME (Boolean Logic)
IF Quantity <= 0 THEN
Show Error: 'Invalid Input'
ELSE
Proceed to Calculation
P = V * I (Power Factor)
END IF
Mathematical and boolean decision trees driving the dashboard.
THE SYSTEM TREATS DOCUMENTATION AS A CIRCUIT: INPUTS MUST BE VALIDATED BEFORE CURRENT (DATA) CAN FLOW.
SCALE: 1:1
DRAWING NO. TSH-2024-B
REV: B
APPROVED BY: TSHINGOMBE LEGACY SYSTEM
NotebookLM

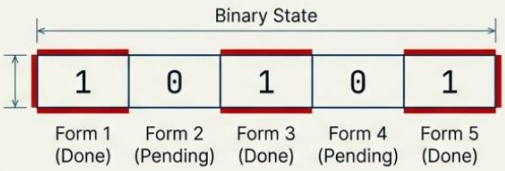
THE ENGINE: VISUAL BASIC (VBA) FORM LOGIC

Multi-Form Architecture & Binary Tracking System

Code Editor

VBA Module: Kfrm2_Registration

```
Private Sub cmdNext_Click()
    If txtNam.Text = '' Or txtID.Text = '' Then
        MsgBox 'Please complete all fields.', vb
    Else
        Kfrm2.Show: Me.Hide
        TrackBinaryState(1) 'Flag Active
    End If
End Sub
```



Aggregation Logic: Kfrm1 = S1 + ∑(K1 to K17)

NOTE:

Every user interaction triggers a binary flag, creating a mathematical fingerprint of the session progress.

TSHINGOMBE LEGACY SYSTEM

SCALE: 1:1 | DRAWING NO. TSH-2024-C | REV: C

NotebookLM

DOMAIN: SMART GRID INFRASTRUCTURE

Digital Twin Component Mapping & Protocol Validation

PHYSICAL INPUTS

Schneider Inverter
Model ID: ML06NP

Cisco Switch
Catalyst 9300

Industrial Motor
Three-phase

IEC 61850 Protocol

VBA CONTROL LOOP

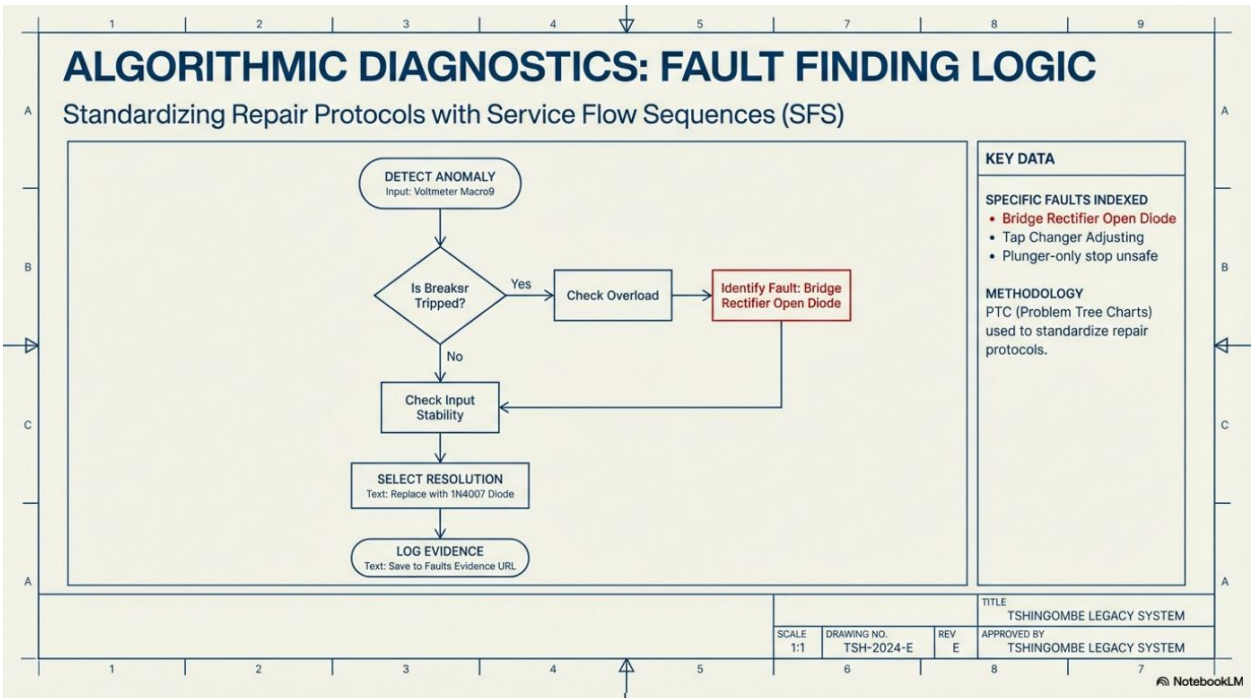
```
InputType = Analog
Algorithm = Closed Loop
Feedback = Active
```

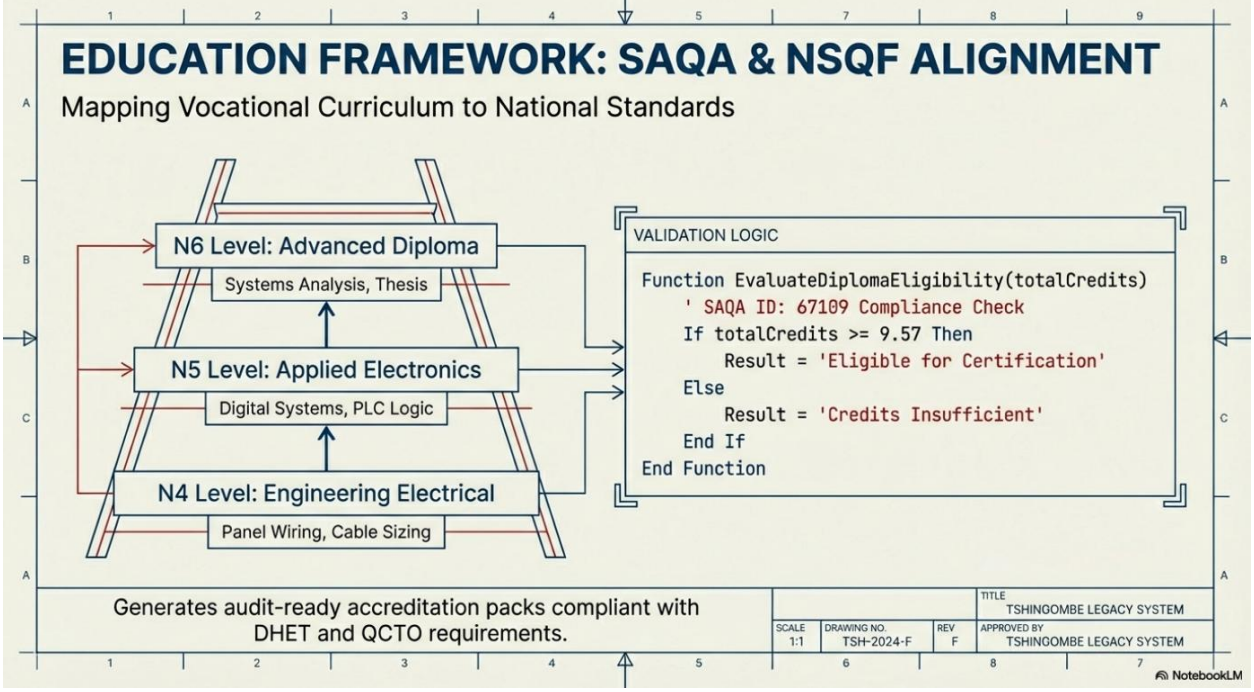
DIGITAL OUTPUT

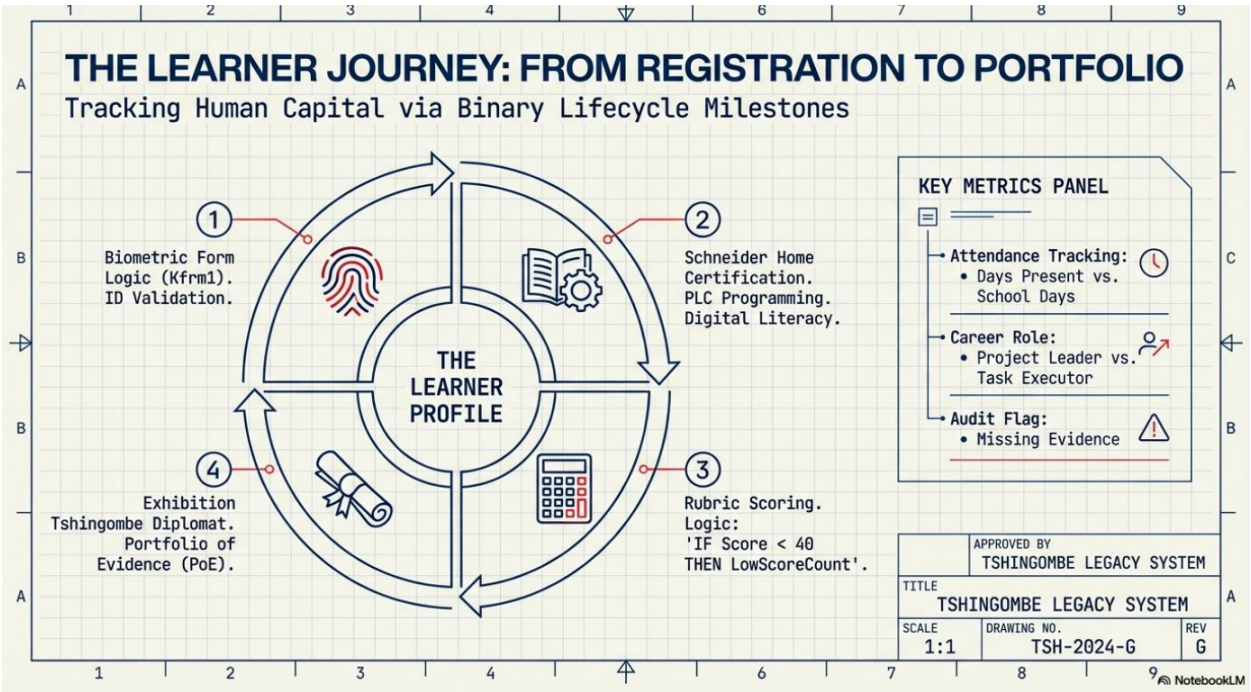
Integration of Ohm's Law and Power Factors directly into the monitoring interface.

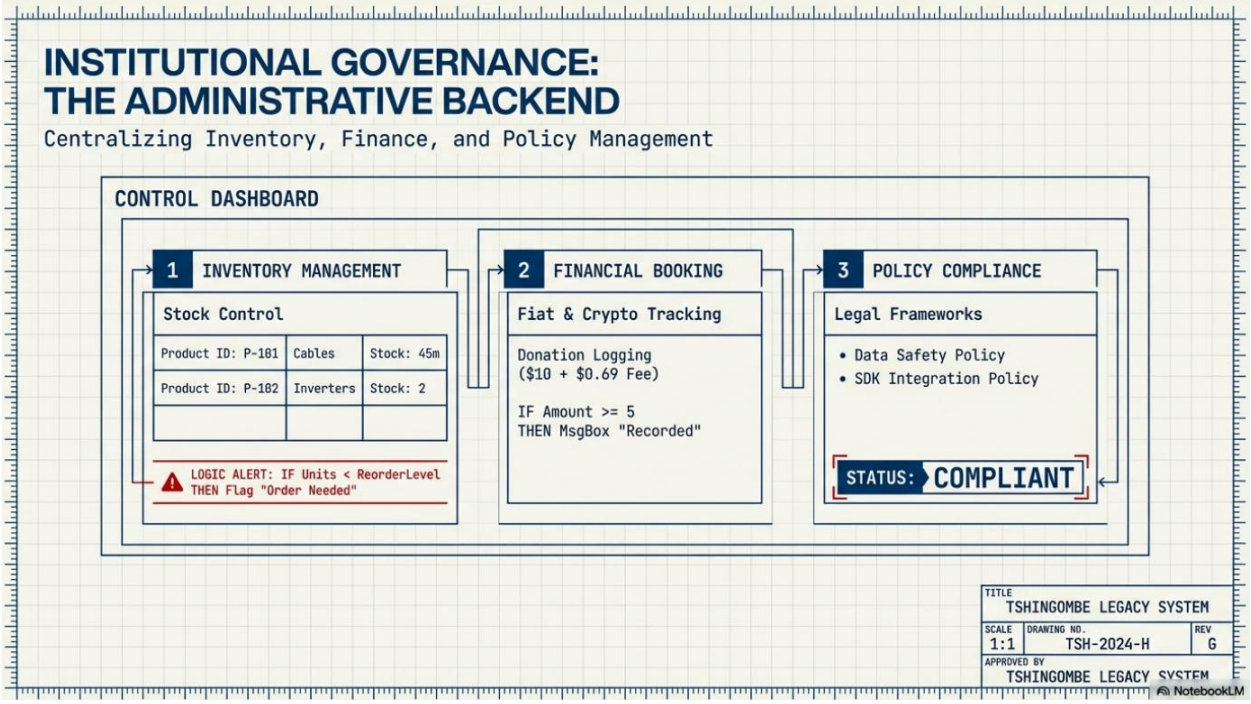
SCALE: 1:1 | DRAWING NO. TSH-2024-D | REV: D

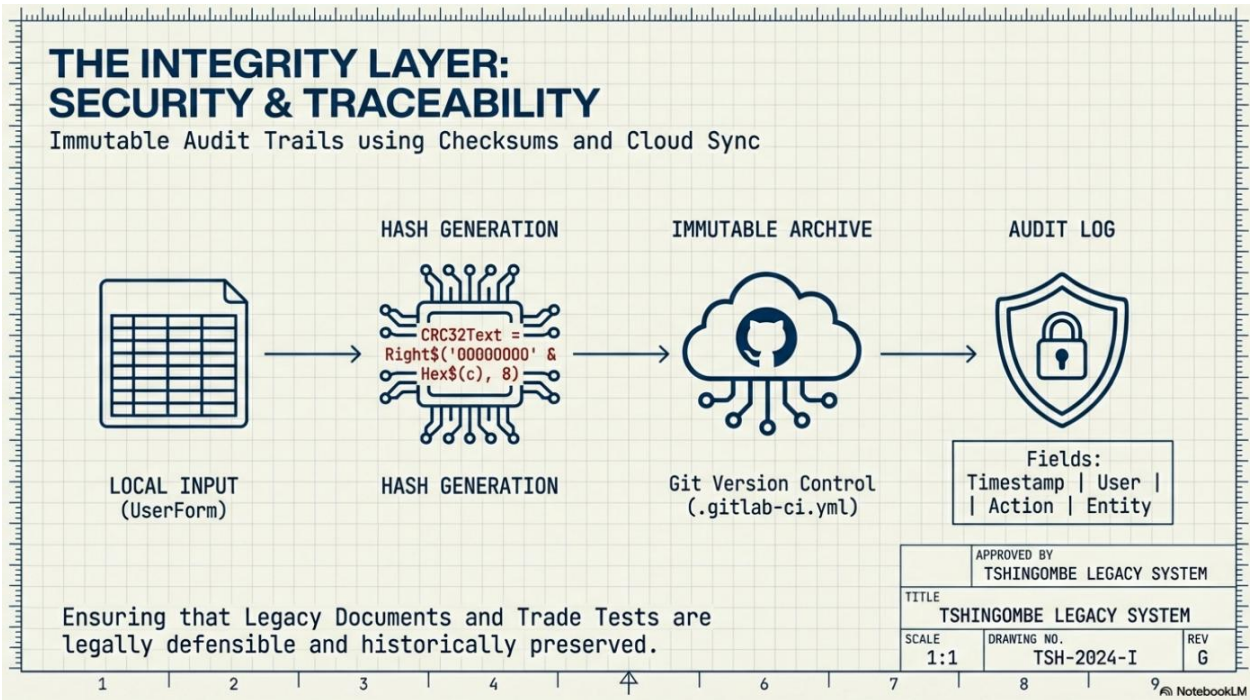
APPROVED SY: TSHINGOMBE LEGACY SYSTEM

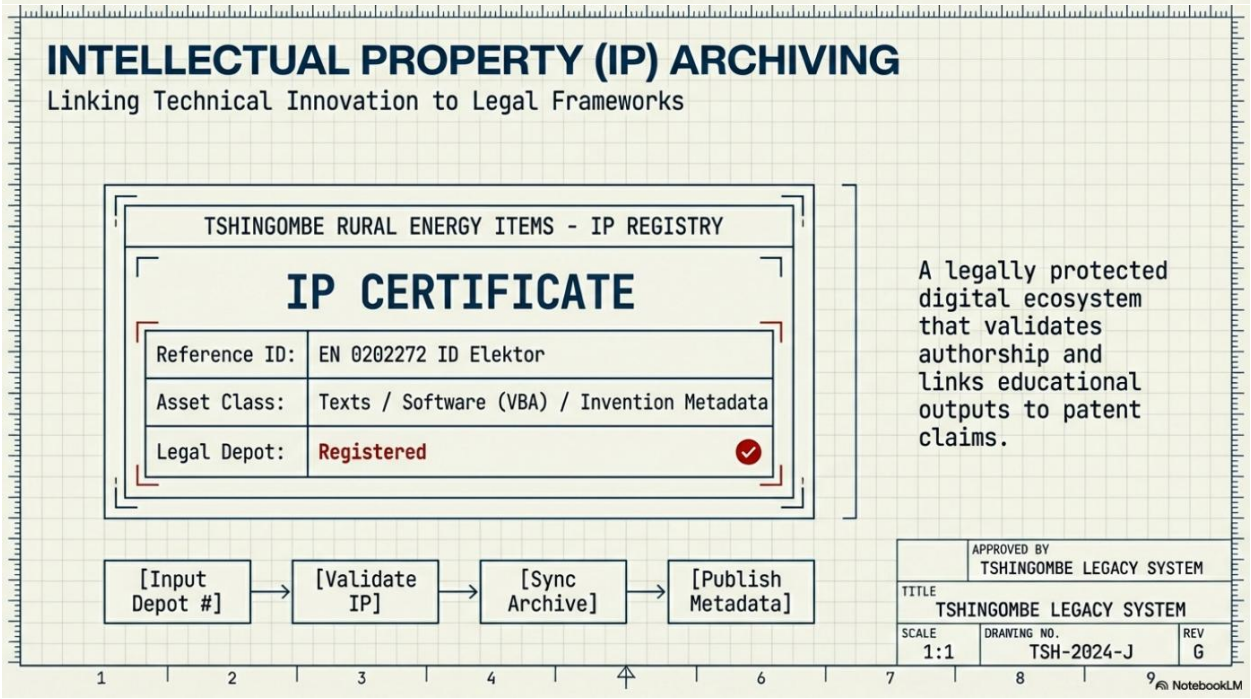

ALGORITHMIC DIAGNOSTICS: FAULT FINDING LOGIC
Standardizing Repair Protocols with Service Flow Sequences (SFS)
DETECT ANOMALY
Input: Voltmeter Macro9
Is Breaksr Tripped?
Yes
Check Overload
Identify Fault: Bridge Rectifier Open Diode
No
Check Input Stability
SELECT RESOLUTION
Text: Replace with 1N4007 Diode
LOG EVIDENCE
Text: Save to Faults Evidence URL
KEY DATA
SPECIFIC FAULTS INDEXED
• Bridge Rectifier Open Diode
• Tap Changer Adjusting
• Plunger-only stop unsafe
METHODOLOGY
PTC (Problem Tree Charts) used to standardize repair protocols.
TITLE
TSHINGOMBE LEGACY SYSTEM
SCALE 1:1
DRAWING NO. TSH-2024-E
REV E
APPROVED BY
TSHINGOMBE LEGACY SYSTEM
NotebookLM

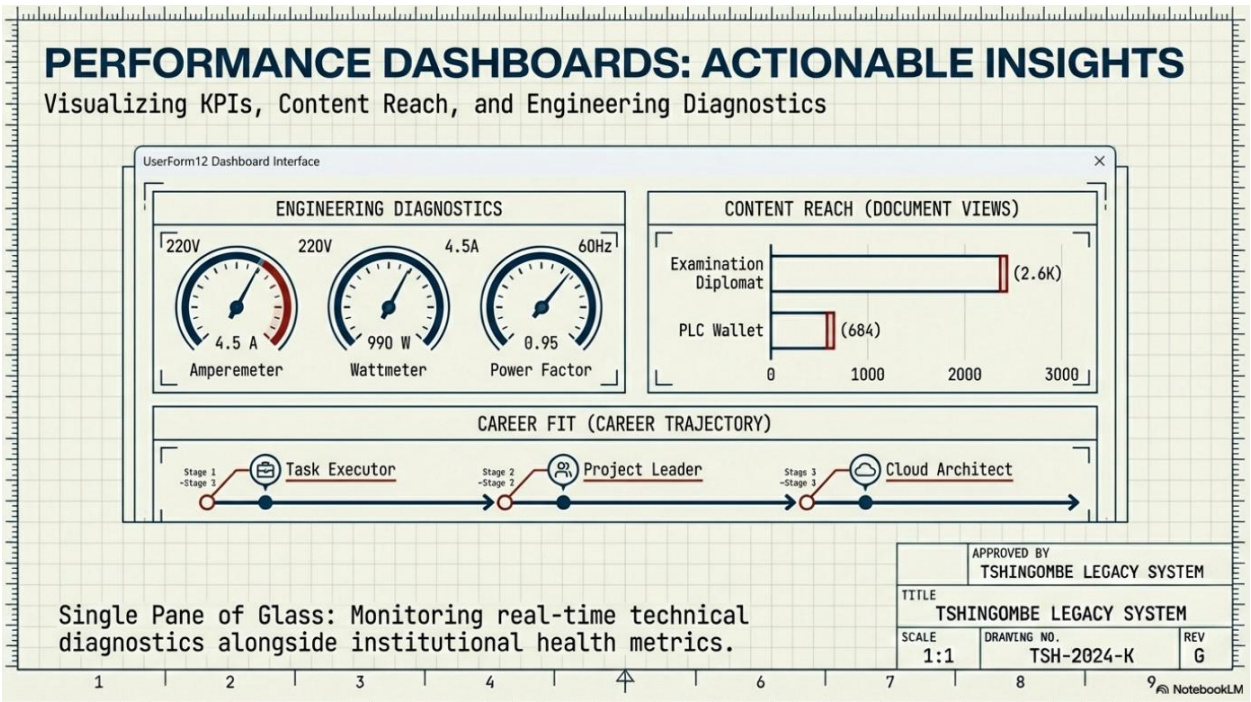

EDUCATION FRAMEWORK: SAQA & NSQF ALIGNMENT
Mapping Vocational Curriculum to National Standards
N6 Level: Advanced Diploma
Systems Analysis, Thesis
N5 Level: Applied Electronics
Digital Systems, PLC Logic
N4 Level: Engineering Electrical
Panel Wiring, Cable Sizing
VALIDATION LOGIC
Function EvaluateDiplomaEligibility(totalCredits)
' SAQA ID: 67109 Compliance Check
If totalCredits >= 9.57 Then
Result = 'Eligible for Certification'
Else
Result = 'Credits Insufficient'
End If
End Function
Generates audit-ready accreditation packs compliant with DHET and QCTO requirements.
TITLE
TSHINGOMBE LEGACY SYSTEM
SCALE 1:1
DRAWING NO. TSH-2024-F
REV F
APPROVED BY
TSHINGOMBE LEGACY SYSTEM
NotebookLM

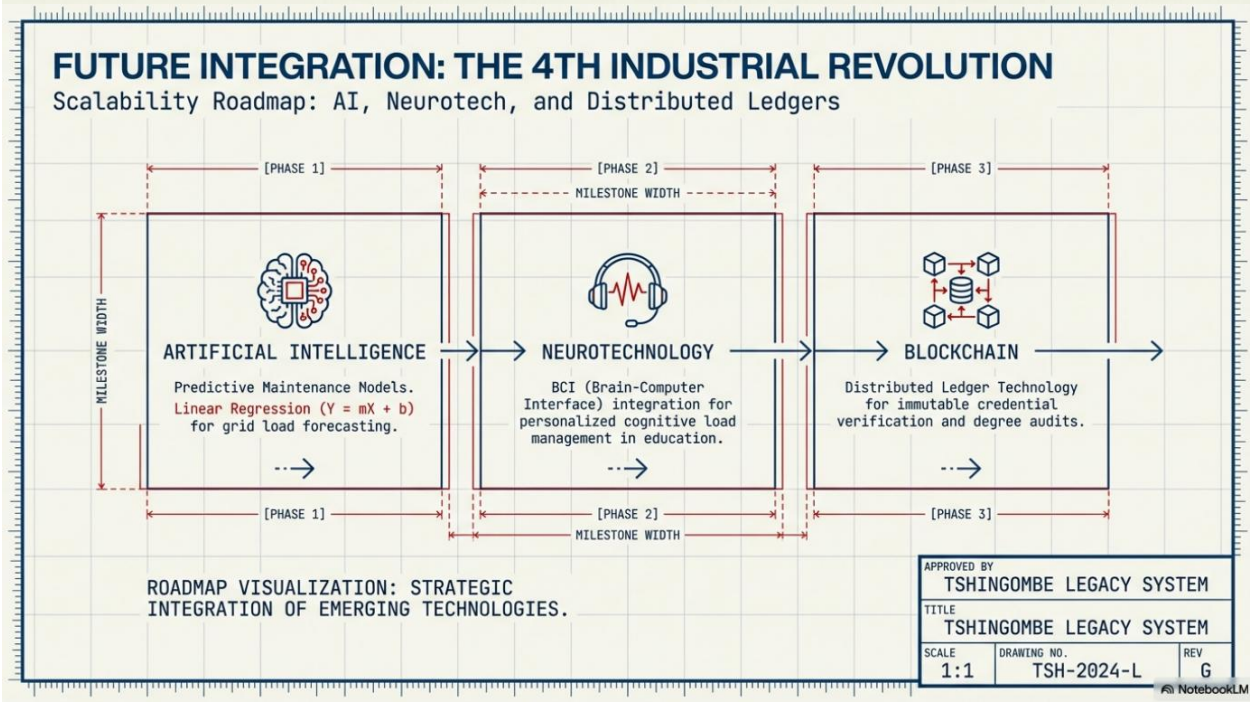

THE LEARNER JOURNEY: FROM REGISTRATION TO PORTFOLIO
Tracking Human Capital via Binary Lifecycle Milestones
1
Biometric Form Logic (Kfrm1). ID Validation.
2
Schneider Home Certification. PLC Programming. Digital Literacy.
THE LEARNER PROFILE
4
Exhibition Tshingombe Diplomat. Portfolio of Evidence (PoE).
3
Rubric Scoring. Logic: 'IF Score < 40 THEN LowScoreCount'.
KEY METRICS PANEL
Attendance Tracking:
• Days Present vs. School Days
Career Role:
• Project Leader vs. Task Executor
Audit Flag:
• Missing Evidence
APPROVED BY
TSHINGOMBE LEGACY SYSTEM
TITLE
TSHINGOMBE LEGACY SYSTEM
SCALE
1:1
DRAWING NO.
TSH-2024-G
REV
G
NotebookLM

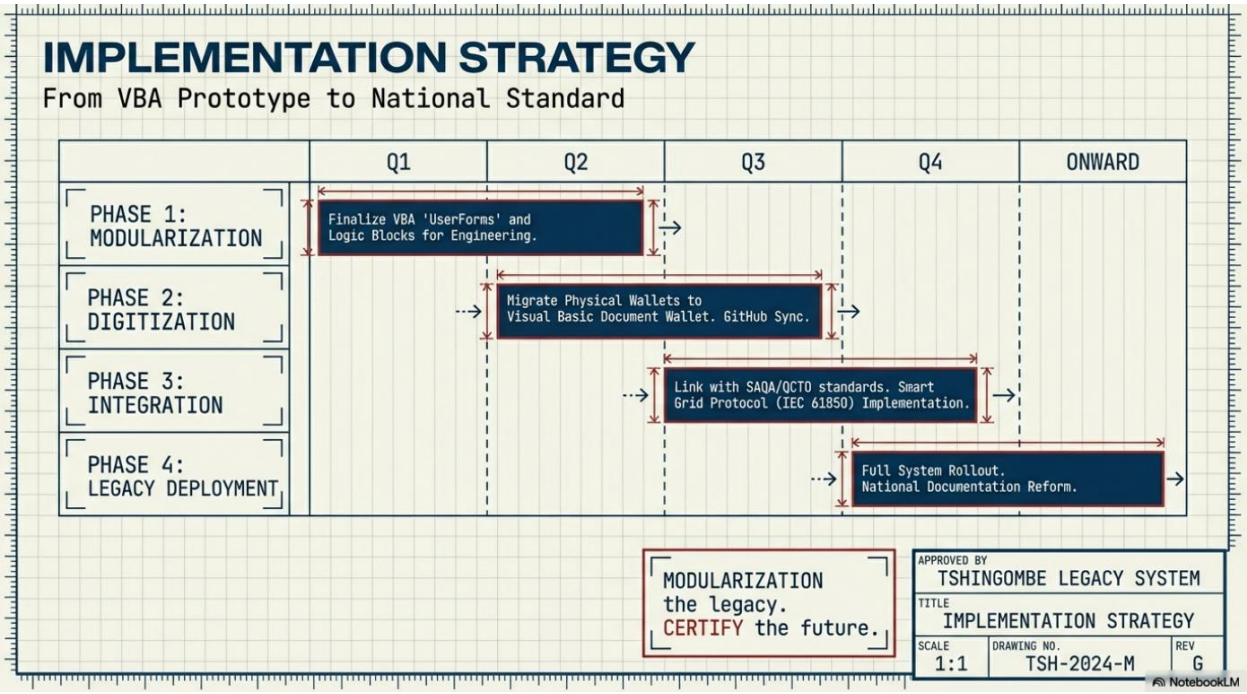

INSTITUTIONAL GOVERNANCE: THE ADMINISTRATIVE BACKEND
Centralizing Inventory, Finance, and Policy Management
CONTROL DASHBOARD
1 INVENTORY MANAGEMENT
Stock Control
Product ID: P-101 | Cables | Stock: 45m
Product ID: P-102 | Inverters | Stock: 2
LOGIC ALERT: IF Units < ReorderLevel THEN Flag "Order Needed"
2 FINANCIAL BOOKING
Fiat & Crypto Tracking
Donation Logging ($10 + $0.69 Fee)
IF Amount >= 5 THEN MsgBox "Recorded"
3 POLICY COMPLIANCE
Legal Frameworks
• Data Safety Policy
• SDK Integration Policy
STATUS: COMPLIANT
TITLE
TSHINGOMBE LEGACY SYSTEM
SCALE
1:1
DRAWING NO.
TSH-2024-H
REV
G
APPROVED BY
TSHINGOMBE LEGACY SYSTEM
NotebookLM

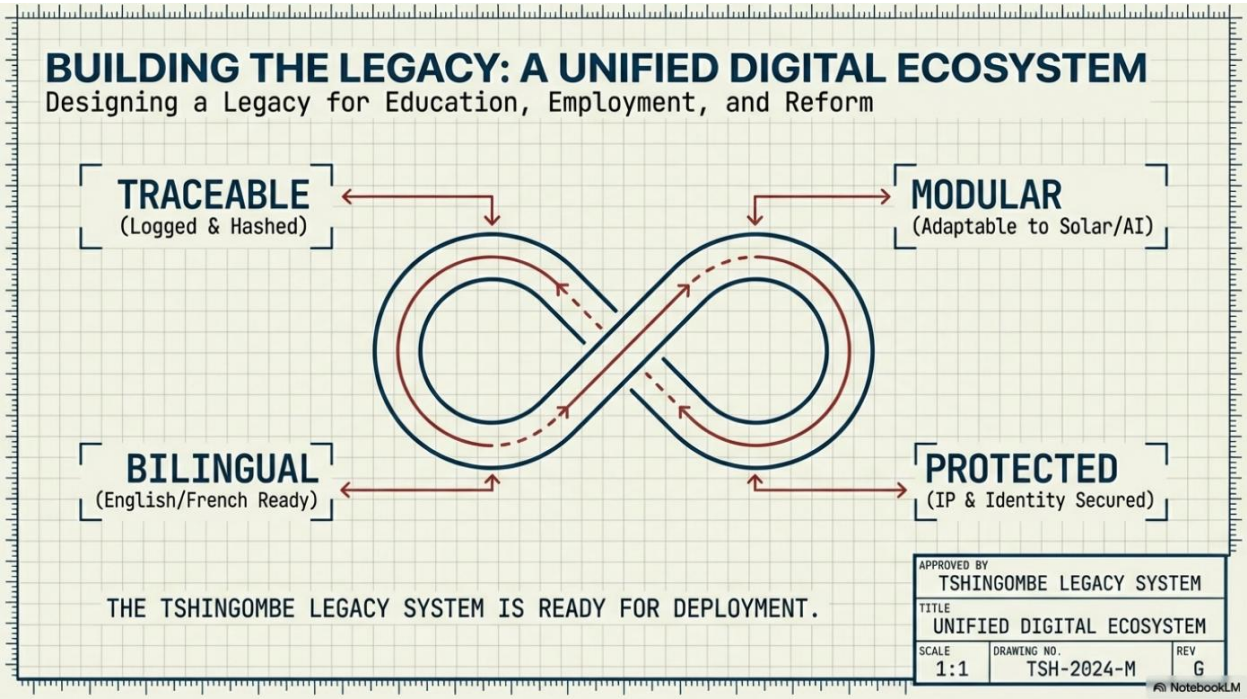

THE INTEGRITY LAYER:
SECURITY & TRACEABILITY
Immutable Audit Trails using Checksums and Cloud Sync
HASH GENERATION
IMMUTABLE ARCHIVE
AUDIT LOG
CRC32Text = Right$('00000000' & Hex$(c), 8)
LOCAL INPUT (UserForm)
HASH GENERATION
Git Version Control (.gitlab-ci.yml)
Fields: Timestamp | User | | Action | Entity
Ensuring that Legacy Documents and Trade Tests are legally defensible and historically preserved.
APPROVED BY
TSHINGOMBE LEGACY SYSTEM
TITLE
TSHINGOMBE LEGACY SYSTEM
SCALE
1:1
DRAWING NO.
TSH-2024-I
REV
G
NotebookLM


INTELLECTUAL PROPERTY (IP) ARCHIVING
Linking Technical Innovation to Legal Frameworks
TSHINGOMBE RURAL ENERGY ITEMS - IP REGISTRY
IP CERTIFICATE
Reference ID: EN 0202272 ID Elektor
Asset Class: Texts / Software (VBA) / Invention Metadata
Legal Depot: Registered
A legally protected digital ecosystem that validates authorship and links educational outputs to patent claims.
[Input Depot #]
[Validate IP]
[Sync Archive]
[Publish Metadata]
APPROVED BY
TSHINGOMBE LEGACY SYSTEM
TITLE
TSHINGOMBE LEGACY SYSTEM
SCALE
1:1
DRAWING NO.
TSH-2024-J
REV
G
NotebookLM


PERFORMANCE DASHBOARDS: ACTIONABLE INSIGHTS
Visualizing KPIs, Content Reach, and Engineering Diagnostics
UserForm12 Dashboard Interface
ENGINEERING DIAGNOSTICS
220V
220V
4.5A
60Hz
4.5 A
990 W
0.95
Amperemeter
Wattmeter
Power Factor
CONTENT REACH (DOCUMENT VIEWS)
Examination Diplomat
(2.6K)
PLC Wallet
(684)
0
1000
2000
3000
CAREER FIT (CAREER TRAJECTORY)
Task Executor
Project Leader
Cloud Architect
Single Pane of Glass: Monitoring real-time technical diagnostics alongside institutional health metrics.
APPROVED BY
TSHINGOMBE LEGACY SYSTEM
TITLE
TSHINGOMBE LEGACY SYSTEM
SCALE
1:1
DRAWING NO.
TSH-2024-K
REV
G
NotebookLM


FUTURE INTEGRATION: THE 4TH INDUSTRIAL REVOLUTION
Scalability Roadmap: AI, Neurotech, and Distributed Ledgers
[PHASE 1]
[PHASE 2]
[PHASE 3]
MILESTONE WIDTH
ARTIFICIAL INTELLIGENCE
Predictive Maintenance Models.
Linear Regression (Y = mX + b)
for grid load forecasting.
NEUROTECHNOLOGY
BCI (Brain-Computer Interface) integration for personalized cognitive load management in education.
BLOCKCHAIN
Distributed Ledger Technology for immutable credential verification and degree audits.
ROADMAP VISUALIZATION: STRATEGIC INTEGRATION OF EMERGING TECHNOLOGIES.
APPROVED BY
TSHINGOMBE LEGACY SYSTEM
TITLE
TSHINGOMBE LEGACY SYSTEM
SCALE
1:1
DRAWING NO.
TSH-2024-L
REV
G
NotebookLM


IMPLEMENTATION STRATEGY
From VBA Prototype to National Standard
Q1
Q2
Q3
Q4
ONWARD
PHASE 1: MODULARIZATION
PHASE 2: DIGITIZATION
PHASE 3: INTEGRATION
PHASE 4: LEGACY DEPLOYMENT
Finalize VBA 'UserForms' and Logic Blocks for Engineering.
Migrate Physical Wallets to Visual Basic Document Wallet. GitHub Sync.
Link with SAQA/QCTO standards. Smart Grid Protocol (IEC 61850) Implementation.
Full System Rollout. National Documentation Reform.
MODULARIZATION the legacy. CERTIFY the future.
APPROVED BY
TSHINGOMBE LEGACY SYSTEM
TITLE
IMPLEMENTATION STRATEGY
SCALE
1:1
DRAWING NO.
TSH-2024-M
REV
G
NotebookLM


BUILDING THE LEGACY: A UNIFIED DIGITAL ECOSYSTEM
Designing a Legacy for Education, Employment, and Reform
TRACEABLE
(Logged & Hashed)
MODULAR
(Adaptable to Solar/AI)
BILINGUAL
(English/French Ready)
PROTECTED
(IP & Identity Secured)
THE TSHINGOMBE LEGACY SYSTEM IS READY FOR DEPLOYMENT.
APPROVED BY
TSHINGOMBE LEGACY SYSTEM
TITLE
UNIFIED DIGITAL ECOSYSTEM
SCALE
1:1
DRAWING NO.
TSH-2024-M
REV
G
NotebookLM

Building Your Digital Legacy: A Modular System for Career & IP Management

This system is a comprehensive framework for creating a legally protected digital archive. It uses Visual Basic logic and flowchart-style processes (Logigrammes) to validate, track, and manage professional documents, intellectual property, and career milestones.

The Digital Archive & IP Protection

A Modular Framework for Archiving & IP Claims

Archives documents, registers inventions, tracks financial value, and automates validation workflows.

Secured with Verifiable Legal Metadata

Uses IP8 references and legal depot numbers to validate authorship and protect content.

The Career & Project Tracker

Integrated Tracking for Engineering Projects

Logs career milestones and syncs with professional platforms like GitHub and Azure DevOps.

Generates Audit-Ready Career Records

Creates traceable documentation for vocational and academic progression (e.g., SAQA/QCTO).

Simplified IP Validation Workflow

A streamlined process ensures intellectual property is registered and archived correctly.

1. **Input Data**
   Enter Legal Depot Number and Invention Title
2. **Validate IP**
   Validates the system entry and saves metadata to the archive
3. **Financial Booking**
   Input in a donation amount, confirmed if it meets the minimum

Automated Career Logging Workflow

A clear workflow for logging project milestones and Management

1. **Log Milestone**
   Input a project name and milestone and saved to their record
2. **Validate Repository**
   Select repository status (e.g., Complete, Failed)
3. **Configure Security**
   Configure security analysis tools (SAST) and secret detection

NotebookLM

Transdisciplinary Engineering & System Design

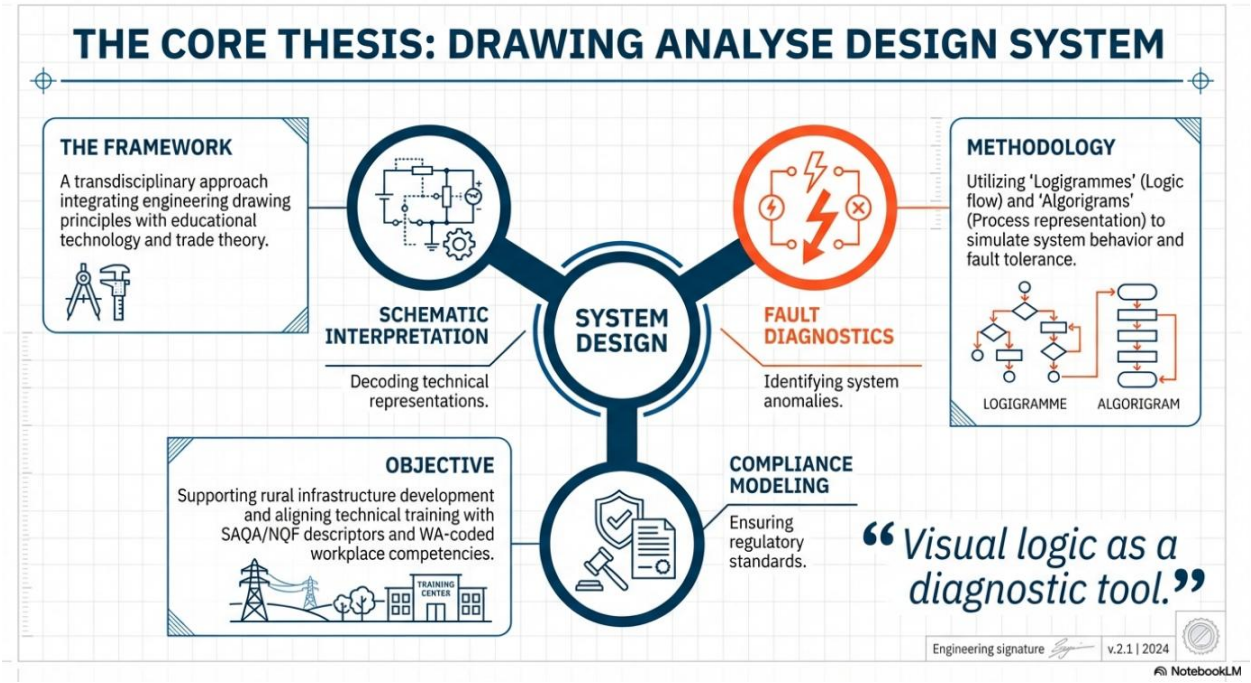
An Integrated Competency Framework for Infrastructure, Technology, and Educational Reform

Portfolio of Tshingombe Tshitadi Fiston

Affiliations: Engineering & Education Technology, SAQA (Johannesburg), Atlantic International University.

Primary Domain: Global SCM / Engineering Systems

NotebookLM


THE CORE THESIS: DRAWING ANALYSE DESIGN SYSTEM
THE FRAMEWORK
A transdisciplinary approach integrating engineering drawing principles with educational technology and trade theory.
SCHEMATIC INTERPRETATION
Decoding technical representations.
SYSTEM DESIGN
FAULT DIAGNOSTICS
Identifying system anomalies.
METHODOLOGY
Utilizing 'Logigrammes' (Logic flow) and 'Algorigrams' (Process representation) to simulate system behavior and fault tolerance.
LOGIGRAMME
ALGORIGRAM
OBJECTIVE
Supporting rural infrastructure development and aligning technical training with SAQA/NQF descriptors and WA-coded workplace competencies.
TRAINING CENTER
COMPLIANCE MODELING
Ensuring regulatory standards.
"Visual logic as a diagnostic tool."
Engineering signature
v.2.1 | 2024
NotebookLM

STRATEGIC PILLAR I: DIGITAL TRANSFORMATION & ARTIFICIAL INTELLIGENCE

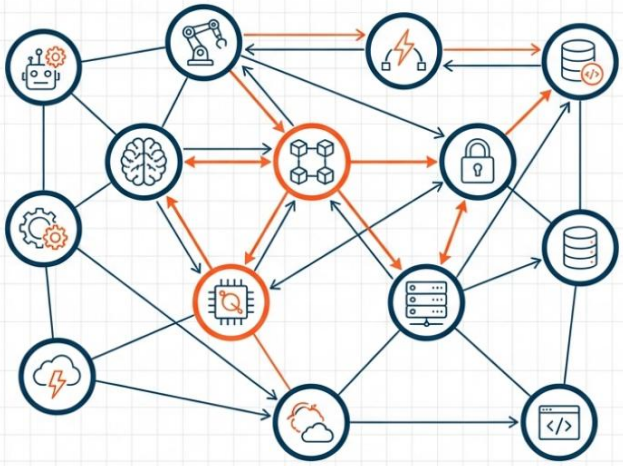
Competency Clusters

AI & Robotics
AGI in Human-Machine Collaboration, Neural Networks, Robotic Process Automation (RPA) in Electrical Engineering.

Blockchain & Security
Immutable Data Storage Solutions, Cryptocurrency applications in Supply Chain, and Advanced Cybersecurity in Bibliotechnology.

Compute Infrastructure
Edge Computing in Modern Power Systems, Quantum Computing in Systems Engineering, Serverless Computing models.

Microsoft Ecosystem
Validated expertise in Azure AI, Data Science, and DevOps.

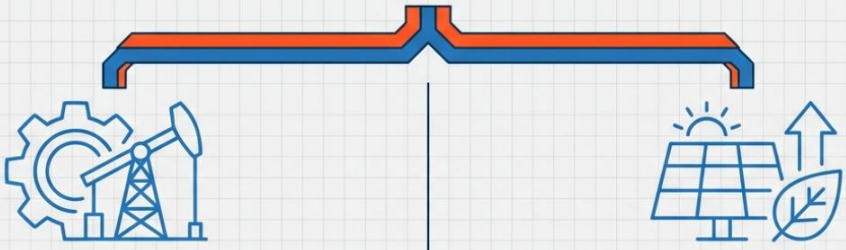


Network Topology of Interconnected Competencies.

Engineering signature v.2.2 | 2024

NotebookLM

STRATEGIC PILLAR II: SUSTAINABLE INFRASTRUCTURE & RESOURCES



Heavy Industry

Materials & Industry
- Metallurgy in Oil & Gas Production (corrosion mechanisms, sulfide stress cracking)
- Electrochemical Engineering
- Wholesale Trade Management in Industrial Engineering

Water & Waste
- Integrated Water Management in Mining
- Urban Sewerage & Remediation
- Waste-to-Energy technologies

Green Tech

Energy Systems
- Clean Energy Ecotechnology & Microgrid Modeling
- Solar, Wind, and Hydro integration
- Battery Technology (Lithium-ion to Solid-state)

Engineering signature Signature v.2.3 | 2024

NotebookLM

STRATEGIC PILLAR III: HUMAN SYSTEMS, EDUCATION & POLICY

Ed-Tech & Pedagogy

Master's in Adult Education Services (Andragogy, Transformative Learning).

Neurotechnology in Educational Tech (BCI applications).

Instructional Design for Technical Trades.

Policy & Law

Advanced Legal Studies in Public Administration.

Safety Standards (Public Law).

Regulatory Compliance in Blockchain/FinTech.

Societal Impact

Transportation & Warehousing in Tourism Planning.

Urban Planning for Water/Waste systems.

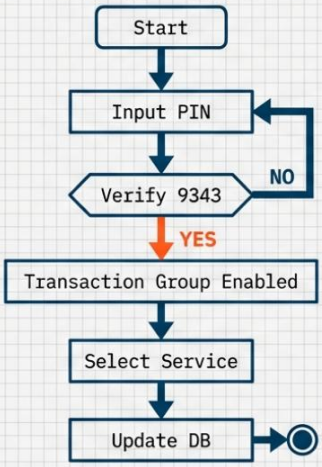
Socio-technical alignment.

Engineering signature *Signature*
v.2.4 | 2024

NotebookLM

Applied Logic: Software Engineering & Simulation

Left Zone: ATM Logic Algorigram



Right Zone

```
1  Public Class TransactionBox
2      Const Service_Charge as Decimal = 6.5
3      Const Pin as Integer = 9343
4      Dim Balance as Decimal = 150
5
6      ' Logic for PIN verification
7      If PinBox.Text = '9343' Then
8          TransactionGroup.Enabled = True
9      End If
10
```

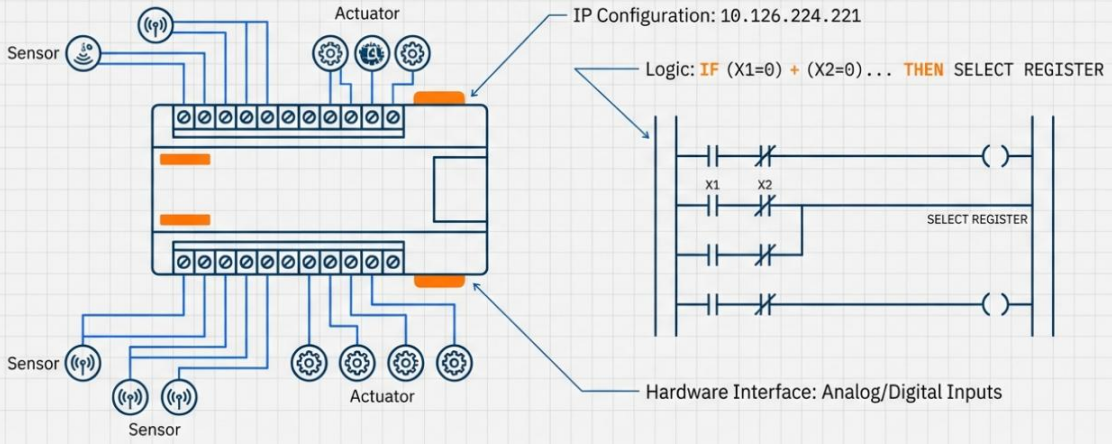
Project: Automated Teller Machine (ATM) System Simulation.
Stack: VB.NET frontend with MS Access Database backend.

Engineering signature
Signature v.2.5 | 2024

NotebookLM

Technical Editorial | Precision Engineering

Industrial Automation & Control Systems (PLC/SCADA)

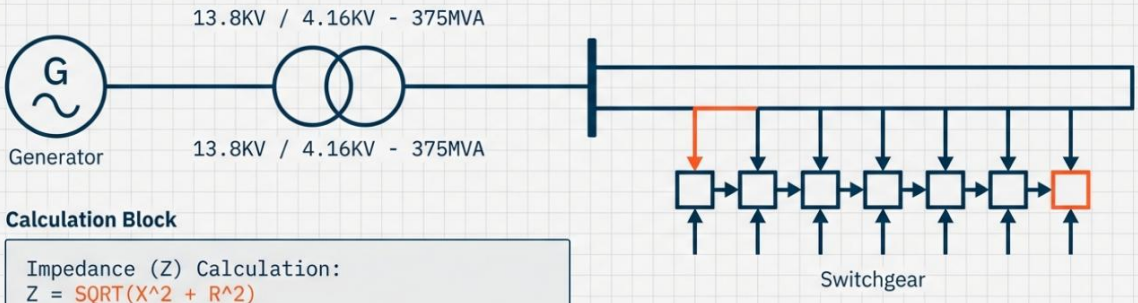


Application: Fault diagnostics and compliance monitoring using visual logic states. Bridging software logic with hardware control.

Engineering signature
Signature v.2.6 | 2024

NotebookLM

Electrical Engineering: Power Systems & Fault Tolerance



Calculation Block

```
Impedance (Z) Calculation:
Z = SQRT(X^2 + R^2)
Calculated X/R ratio = 15

Fault Analysis:
Symmetrical Current Rating (I_sym) = 8.6kA
Momentary Current (I_mom) = 13.7kA
```

Methodology: Calculating symmetrical current ratings to ensure breaker compliance and protection coordination.

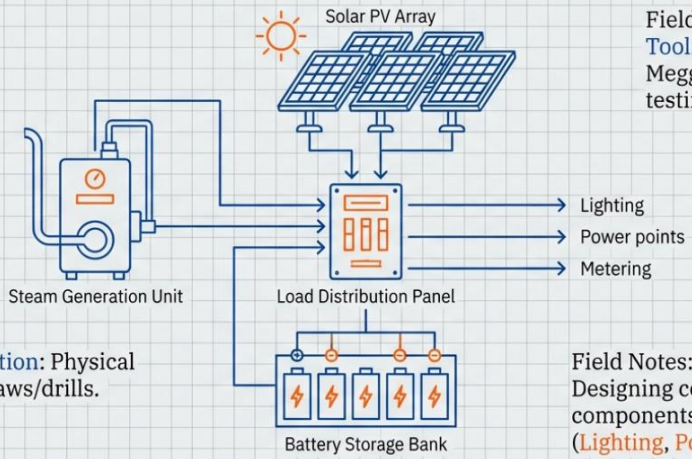
Project: Power System Stability Analysis.
Stack: PowerWorld Simulator with Python automation.

Engineering signature
Signature v.2.7

NotebookLM

Technical Editorial | Precision Engineering

Field Application: Rural Energy & Microgrid Implementation



Field Notes:
Tooling: Digital Multimeters, Meggers (500v) for insulation testing.

Field Notes: Installation: Physical cabling using hacksaws/drills.

Field Notes: Outcome: Designing compliant, safe energy components for remote infrastructure (Lighting, Power points, Metering).

Engineering signature | Signature v.2.8 | 2024

signature gear

NotebookLM

Validated Expertise: Microsoft Cloud & Data Ecosystem

Azure Infrastructure	Azure Administrator (AZ-104)	Azure Solutions Architect (AZ-305)	Azure Security Engineer (AZ-500)
Data & AI	Azure AI Engineer (AI-102)	Azure Data Scientist (DP-100)	Fabric Analytics Engineer (DP-600)
Business Dynamics	Dynamics 365 Supply Chain (MB-330)	Finance & Ops Architect (MB-700)	
Security	Cybersecurity Architect Expert (SC-100)		

Project: Cloud & Data Ecosystem Expertise Validation. Stack: Microsoft Learn & Certification Data.

Engineering signature | Signature v.2.9 | 2024

NotebookLM

Specialized Industrial Training & Safety Compliance

Feb 2025

- Technical: Microgrid Modeling and Analysis
- Technical: Low-Voltage Switchgear
- Sustainability: Supporting CDP Disclosure (Carbon Disclosure Project)

March 2025

- Safety: Power Press Training - PPE & Housekeeping
- Business: Functional Skills in Human Resources

Recent, active engagement with industrial safety standards and sustainability disclosures.

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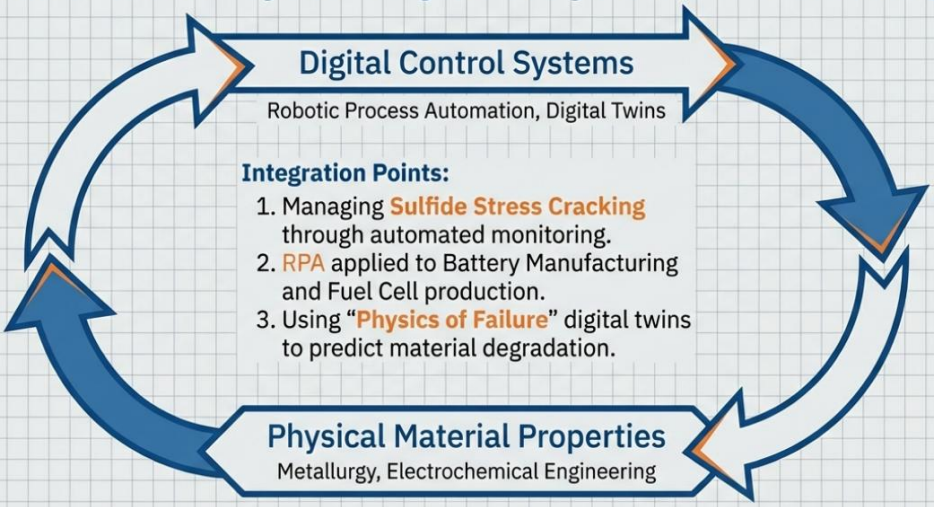
Technical Editorial | Precision Engineering

The Intersection: Cyber-Physical Systems & Metallurgy


Digital Control Systems
Robotic Process Automation, Digital Twins
Integration Points:
1. Managing Sulfide Stress Cracking through automated monitoring.
2. RPA applied to Battery Manufacturing and Fuel Cell production.
3. Using "Physics of Failure" digital twins to predict material degradation.
Physical Material Properties
Metallurgy, Electrochemical Engineering

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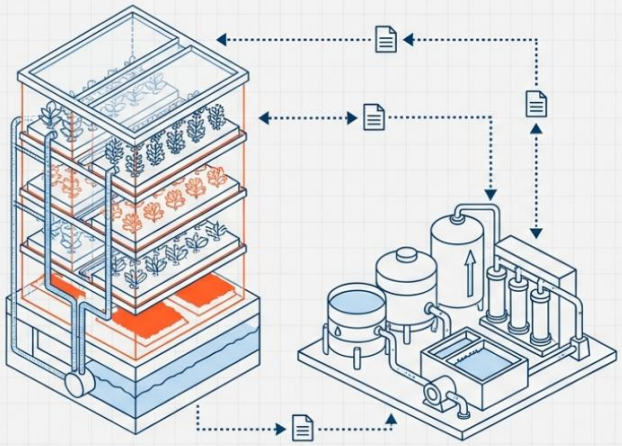
Technical Editorial | Precision Engineering

Future Directions: Synthetic Biology & Smart Cities



Urban Agriculture

Integrating synthetic biology and vertical farming for optimized yields.

Smart Infrastructure

Managing Urban Water Supply & Sewerage remediation via Spatial Computing (GIS/Telecoms).

Autonomous Systems

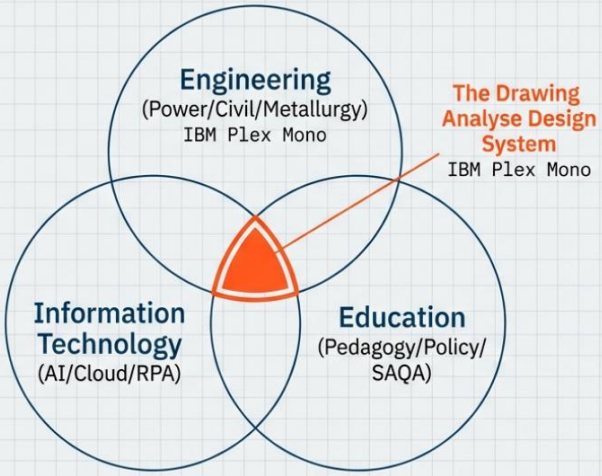
Deploying drones and autonomous vehicles for Electric Vehicle Engineering logistics.

Engineering signature | Signature v.2.12 | 2025

signature gear NotebookLM

Technical Editorial | Precision Engineering

The Transdisciplinary Advantage



- **Holistic Problem Solving:** Diagnosing faults in code (VB.NET), circuits (13.8KV), and curricula.
- **Regulatory Assurance:** Compliance with NQF, ISO, and WA Codes.
- **Innovation Bridge:** Connecting legacy industrial infrastructure with blockchain-secured futures.

Engineering signature | Signature v.2.13 | 2025

signature gear NotebookLM

Technical Editorial | Precision Engineering

Tshingombe Tshitadi Fiston

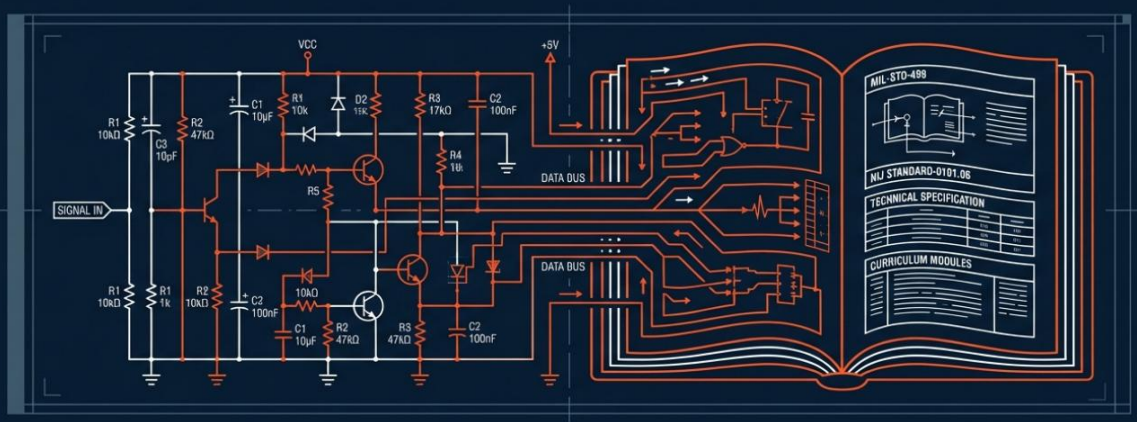
Global SCM / Engineering Systems / Education Technology
tshingombefiston@gmail.com
SAQA | Atlantic International University

Scaffolding infrastructure into a sustainable, automated future through Transdisciplinary Engineering.

Engineering signature | Signature v.2.14 | 2025

signature gear
NotebookLM

ENGINEERING COMPETENCE & STANDARDS INTEGRATION



A Strategic Framework for Leveraging MIL-STD & NIJ Protocols in Sci-Bono Technical Curricula

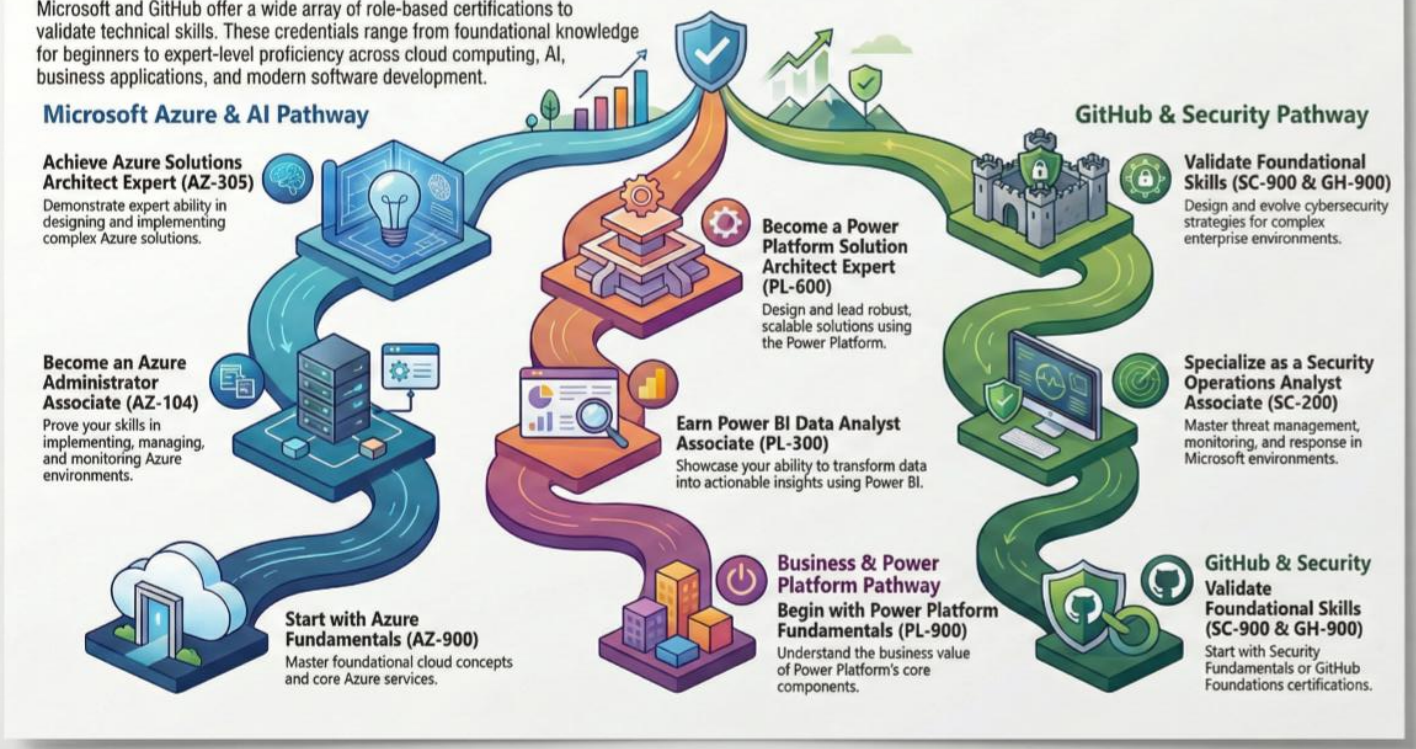
OPERATIONAL STRATEGY: RIGOR → RELIABILITY → READINESS

NotebookLM

OPERATIONAL VISION: THE SCI-BONO CENTER OF EXCELLENCE
Transforming the Discovery Center into a hub of engineering discipline by adopting Department of Defense (DoD) level rigor.
Parts Management (PM&P)
Ensuring authenticity and lifecycle control via MIL-STD-11991B.
Testing & Reliability
Mastering environmental stress screening and vibration analysis (MIL-STD-202G).
Infrastructure & Safety
Unified Facilities Criteria (UFC) and NIJ ballistic protection standards.
Operational Efficiency
Digitizing intake to create audit-ready competency trails.
"Building a future-proof workforce requires the discipline of military standards combined with the accessibility of modern education."
NotebookLM

Chart Your Course: A Guide to Microsoft & GitHub Certifications

Microsoft and GitHub offer a wide array of role-based certifications to validate technical skills. These credentials range from foundational knowledge for beginners to expert-level proficiency across cloud computing, AI, business applications, and modern software development.


Microsoft Azure & AI Pathway
Achieve Azure Solutions Architect Expert (AZ-305)
Demonstrate expert ability in designing and implementing complex Azure solutions.
Become an Azure Administrator Associate (AZ-104)
Prove your skills in implementing, managing, and monitoring Azure environments.
Start with Azure Fundamentals (AZ-900)
Master foundational cloud concepts and core Azure services.
Become a Power Platform Solution Architect Expert (PL-600)
Design and lead robust, scalable solutions using the Power Platform.
Earn Power BI Data Analyst Associate (PL-300)
Showcase your ability to transform data into actionable insights using Power BI.
Business & Power Platform Pathway
Begin with Power Platform Fundamentals (PL-900)
Understand the business value of Power Platform's core components.
GitHub & Security Pathway
Validate Foundational Skills (SC-900 & GH-900)
Design and evolve cybersecurity strategies for complex enterprise environments.
Specialize as a Security Operations Analyst Associate (SC-200)
Master threat management, monitoring, and response in Microsoft environments.
GitHub & Security
Validate Foundational Skills (SC-900 & GH-900)
Start with Security Fundamentals or GitHub Foundations certifications.

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THE AUDITABLE CAREER

Reverse-Engineering a Professional Blueprint

Case Study: Tshingombe Tshitadi | Engineering, Education, Digital Verification

ISO 9001: Quality Management System
NIL-STD-498: Software Development and Documentation
ANSI/ASME Y14.1: Decimal Inch Drawing Sheet Size and Format
IEEE 12207: Software Life Cycle Processes
Digital Verification
Classroom
Bigital Verification Center
Research Labs
Engineering Xor-ksppaces
Function TransformerVs(Yp, Np, Ns) *Calculate Secondary Voltage
Auditable Path
Skill Matrix Verification
Skill Matrix Verification
Experience Data Point: Q3 2023
Credential Validation: Confirmed
Project Receipts
AcademioEfficiency = 8.98)
Function TransformerVe(Yp, Np, Ns) *Calculate Secondary Voltage Const NaxEficiency = 0.98
Traceability Natrix
Rick Azsssment: Low
Performance Nodule: BeFined
System Architecture Overview
Component Nodulxuum: Educatien & Training
Data Integrity Check: Paes
Bin CxreerPath·n as Array(S) 1f CreIentialVerified Then ButldBlest()
Performance Metrics: Defined
Traceability Natrix

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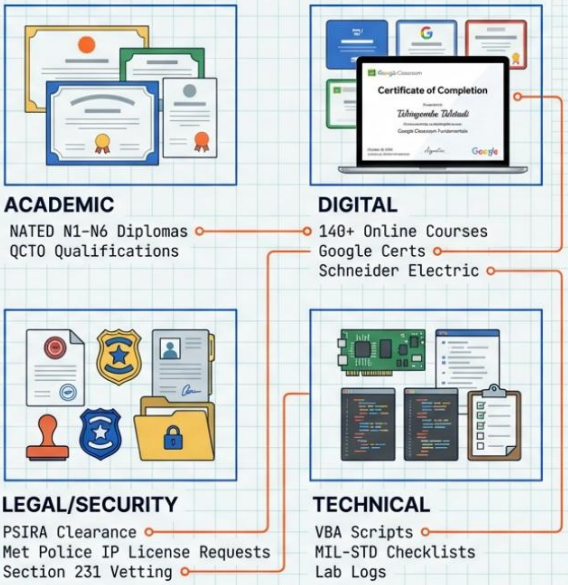
THE SITE SURVEY: DECONSTRUCTING THE DIGITAL MOUNTAIN

A modern career is no longer a single framed diploma; it is a sprawling dataset of 140+ micro-credentials, legal filings, and technical logs. The challenge is verifying this "Portfolio Career".



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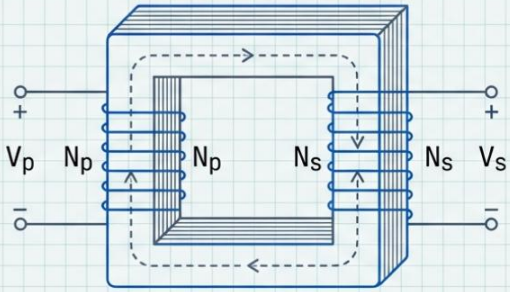
THE FOUNDATION: CORE ENGINEERING COMPETENCE

The Bedrock of the Blueprint



$$\frac{Vp}{Vs} = \frac{Np}{Ns}$$

TECHNICAL SPECS

QUALIFICATION SPECS

- **Credential:** NATED N6 Certificate + 24 Months Practicals
- **Focus:** Industrial Electronics, Engineering Science, Mathematics
- **Standard:** QCTO Occupational Qualification

Impedance Magnitude: $Z = \sqrt{R^2 + (X_L - X_C)^2}$

Vector Voltage: $V^2 = V_R{}^2 + V_L{}^2$

Power Factor: True Power / Apparent Power

VERIFIED: MATHEMATICALLY SOUND

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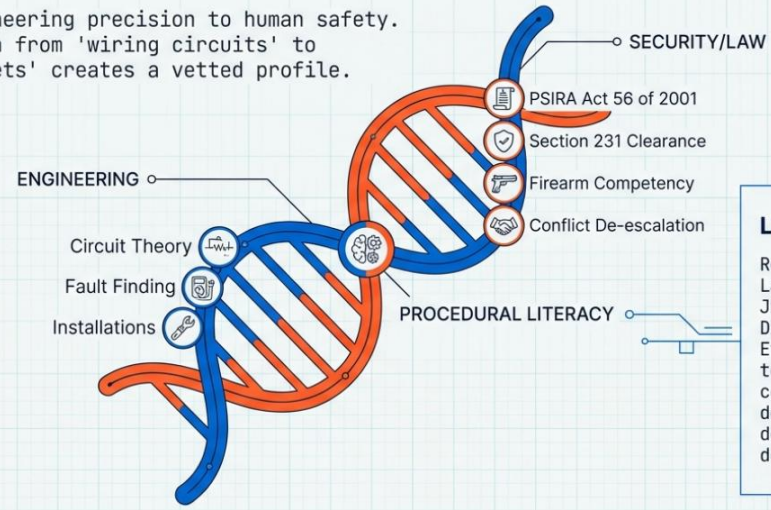
VERTICAL EXPANSION: THE SECURITY & COMPLIANCE PIVOT

Applying engineering precision to human safety. The transition from 'wiring circuits' to 'securing assets' creates a vetted profile.



LEGAL SCRUTINY

Reference: Labour Court Case JR24611 & CCMA Dispute Referrals. Evidence of technical competence documenting documenting legal defensibility.

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THE ARCHITECT ROLE: ENGINEERING THE EDUCATION SYSTEM

Moving from operational execution to structural design. Thinking like an architect, but for education.

Didactic System Architecture

CURRICULUM DIAGNOSTICS → CREDENTIALING SYSTEMS (QCTO/SAQA) → LEARNER DASHBOARDS & GAMIFIED AIDS → AUDIT-READY DOCUMENTATION

> ***"Ensure that assessment is conducted at the end of the program."*** — *Establishing the audit trail for learners.*

VERIFIED: AUDIT TRAIL ESTABLISHED

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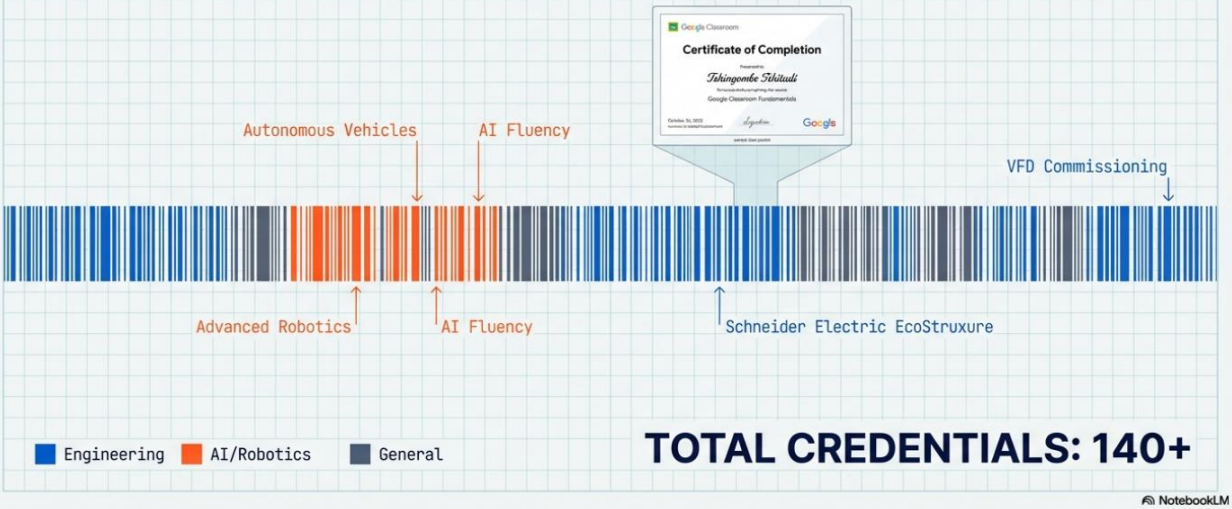
THE UTILITY SYSTEM: A 140+ COURSE DIGITAL ENGINE

A "Living Portfolio" that updates in real-time.
Contrast the static diploma with a movie of a career.



TOTAL CREDENTIALS: 140+

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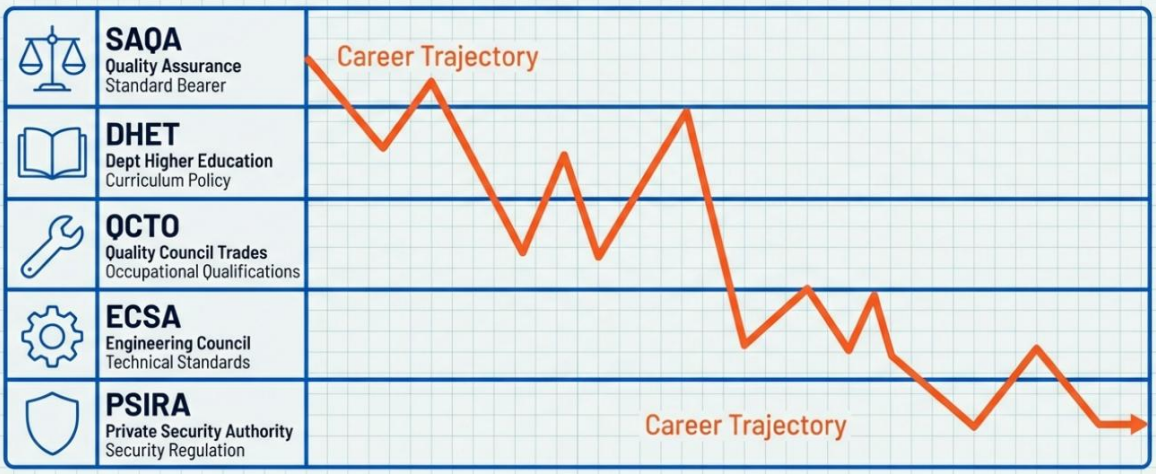
NAVIGATING THE INSTITUTIONAL MATRIX

A career built across conflicting regulatory "Swim Lanes," requiring the engineer to act as a regulatory expert.



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THE INSPECTION CODE: MIL-STD-100G VS. IEC 62368-1

Synthesizing Military Rigor with Commercial Safety

DIMENSION	MIL-STD-100G (Defense)	IEC 62368-1 (Safety)
Primary Focus	Engineering Drawing Practices & CAGE Codes	Hazard-Based Safety Engineering (HBSE)
Documentation	Prescriptive Formats (ASME Y14.100M)	Risk Assessment & Safeguard Docs
Change Control	New PINs for Interchangeability	Impact Assessment on Safeguards
Outcome	Structure & Traceability	Safety & Risk Mitigation

Key Takeaway: Integrating strict military traceability with modern hazard-based safety protocols.

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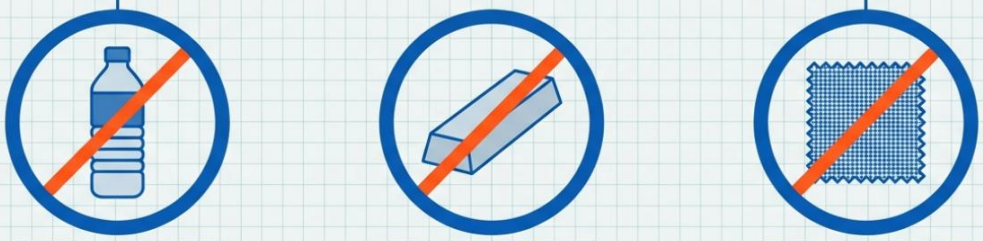
PARTS, MATERIALS, & PROCESSES (PM&P)

The Zero-Failure Standard (MIL-STD-11991B)

Prohibited Materials



PVC PLASTICS
Banned: Outgassing & Toxic Fumes

PURE TIN
Banned: Zinc Whiskers (Short Circuits)

COTTON/LINEN
Banned: Flammability & Moisture

COUNTERFEIT PREVENTION PROTOCOLS

- Standard: SAE AS5553 / AS6174
- Detection Method: Scanning Acoustic Microscopy (SAM) for delamination
- Reporting: GIDEP Data Exchange

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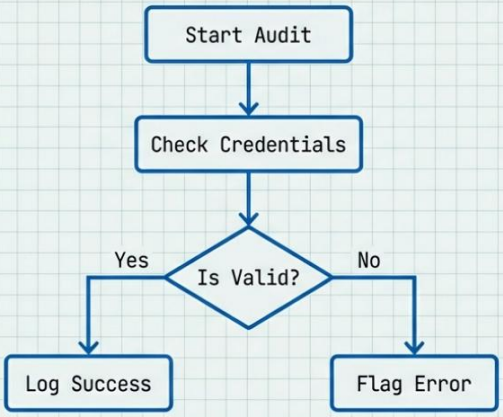
AUTOMATING THE AUDIT: THE CODE BEHIND THE CAREER

The Logic (Logigram)



The Code (VBA)

```
Sub BuildMilStd810AuditChecklist()
  ' Auto-parses text into compliance tables
  Dim src As String, lines() As String
  src = Sheet1.Range("A1").Value
  lines = Split(src, vbLf)
End Sub

Function TransformerVs(Vp, Np, Ns)
  ' Automates engineering calculations
  TransformerVs = Vp * (Ns / Np)
End Function
```

Self-validating portfolios built on algorithmic logic.

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TECHNICAL MASTERY: THE MATHEMATICS OF RELIABILITY

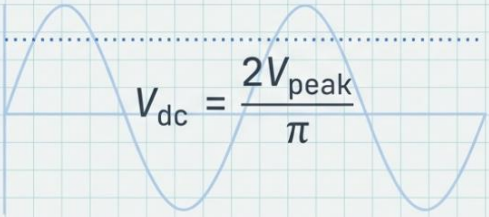
Inductor Current

$$I(t) = -\frac{V_m}{\omega L}\cos(\omega t)$$

Capacitor Energy

$$W = \frac{1}{2} C V^2$$

Rectifier Output



$$V_{dc} = \frac{2V_{peak}}{\pi}$$

Logic Gates

A	B	Output
0	0	1
0	1	1
1	0	1
1	1	0

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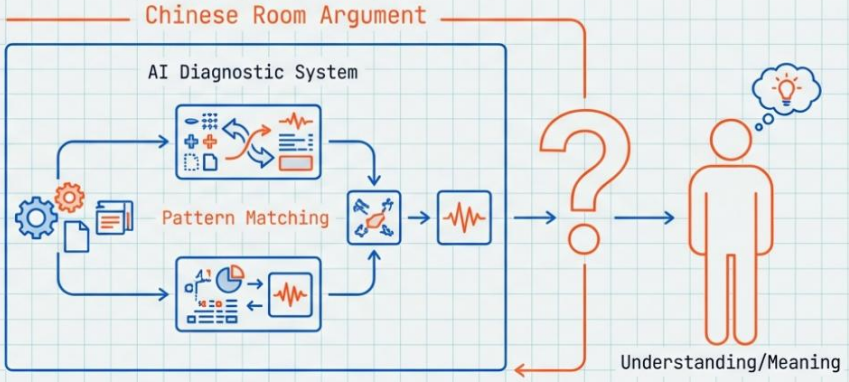
THE INTELLECTUAL EDGE: AI FLUENCY & PHILOSOPHY

Moving beyond coding to understand the limits of machine intelligence in critical diagnostics.

Tools

- Predictive Diagnostics
- Fourier Transforms
- Laplace Transforms
- Supervised Learning



"Is the diagnostic AI truly understanding the transformer fault, or just running an advanced pattern match?"

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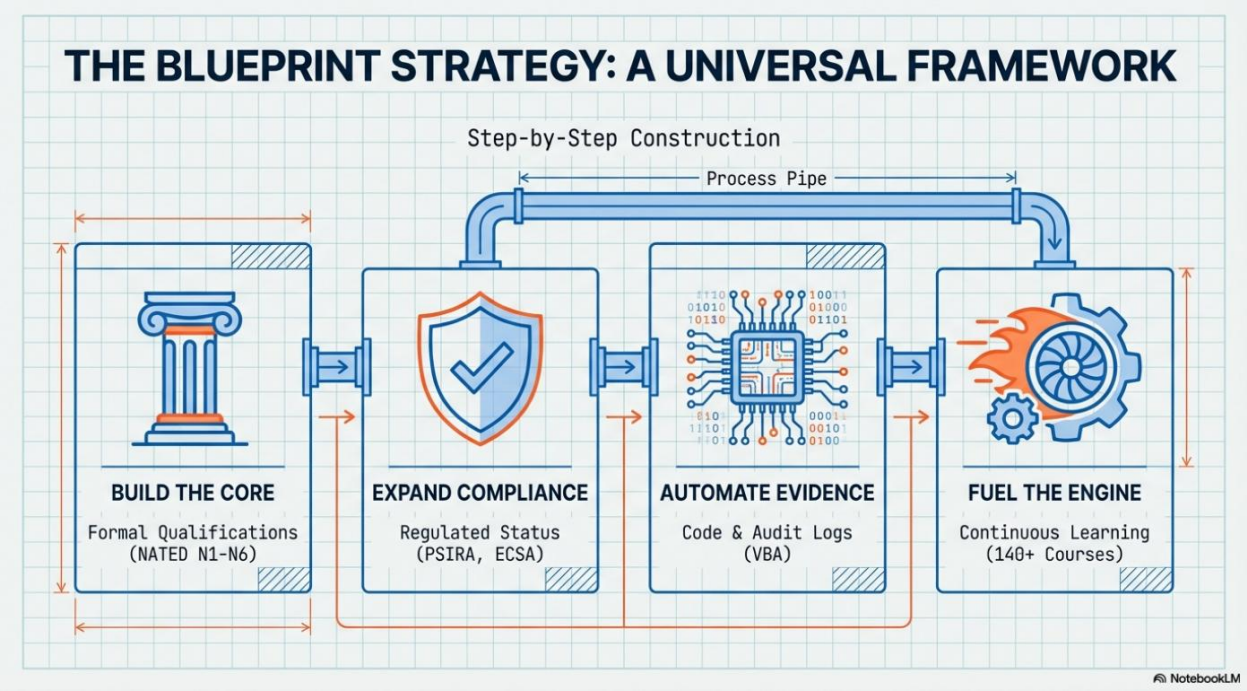
THE BLUEPRINT STRATEGY: A UNIVERSAL FRAMEWORK
Step-by-Step Construction
Process Pipe
BUILD THE CORE
Formal Qualifications
(NATED N1-N6)
EXPAND COMPLIANCE
Regulated Status
(PSIRA, ECSA)
AUTOMATE EVIDENCE
Code & Audit Logs
(VBA)
FUEL THE ENGINE
Continuous Learning
(140+ Courses)
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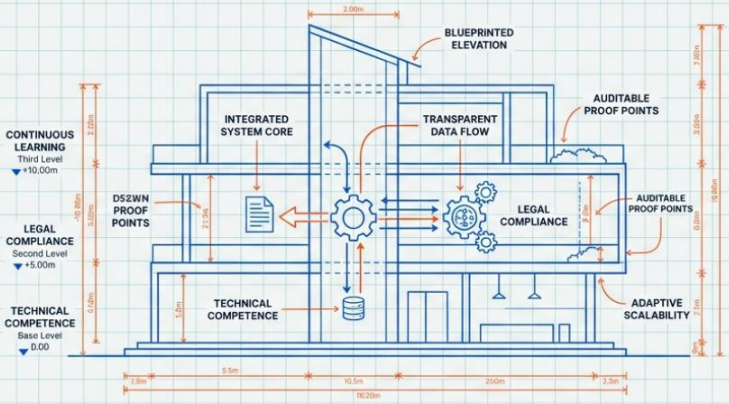
CONCLUSION: THE CAREER AS AN AUDITABLE SYSTEM

The shift from a 'Career in Papers' to a 'Career in Logic'. An Auditable Career is technical competence, legal compliance, and continuous learning integrated into a single, transparent architecture.



If your career was audited today, would it pass inspection?

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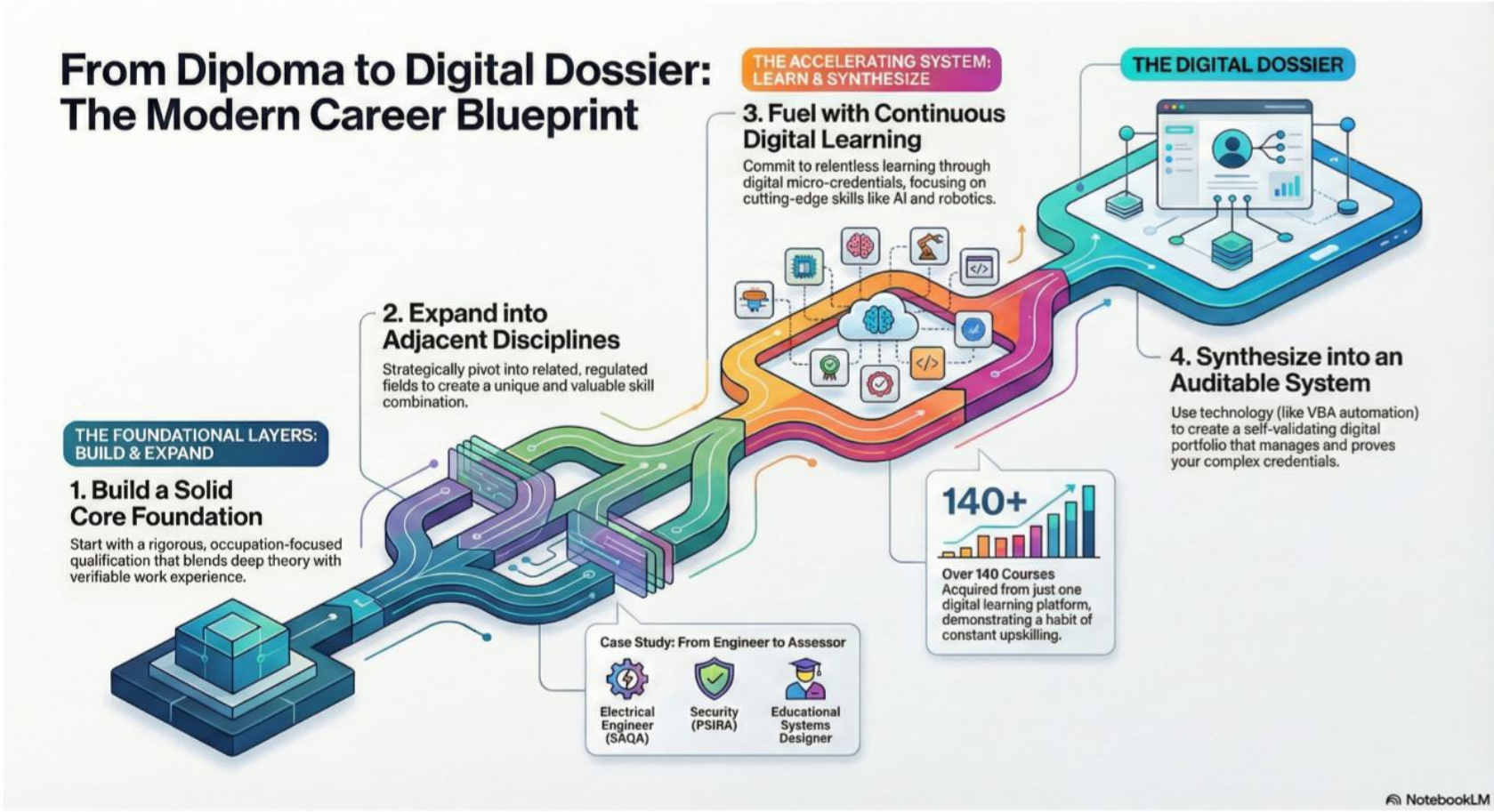
From Diploma to Digital Dossier: The Modern Career Blueprint
THE FOUNDATIONAL LAYERS: BUILD & EXPAND
1. Build a Solid Core Foundation
Start with a rigorous, occupation-focused qualification that blends deep theory with verifiable work experience.
2. Expand into Adjacent Disciplines
Strategically pivot into related, regulated fields to create a unique and valuable skill combination.
THE ACCELERATING SYSTEM: LEARN & SYNTHESIZE
3. Fuel with Continuous Digital Learning
Commit to relentless learning through digital micro-credentials, focusing on cutting-edge skills like AI and robotics.
THE DIGITAL DOSSIER
4. Synthesize into an Auditable System
Use technology (like VBA automation) to create a self-validating digital portfolio that manages and proves your complex credentials.
140+
Over 140 Courses
Acquired from just one digital learning platform, demonstrating a habit of constant upskilling.
Case Study: From Engineer to Assessor
Electrical Engineer (SAQA)
Security (PSIRA)
Educational Systems Designer
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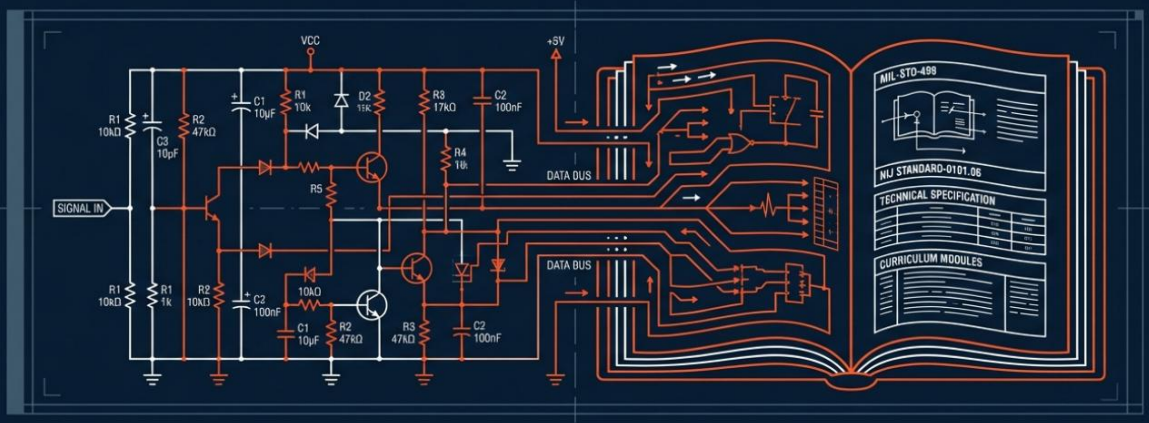
ENGINEERING COMPETENCE & STANDARDS INTEGRATION



A Strategic Framework for Leveraging MIL-STD & NIJ Protocols in Sci-Bono Technical Curricula

OPERATIONAL STRATEGY: RIGOR → RELIABILITY → READINESS

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OPERATIONAL VISION: THE SCI-BONO CENTER OF EXCELLENCE

Transforming the Discovery Center into a hub of engineering discipline by adopting Department of Defense (DoD) level rigor.

Parts Management (PM&P)

Ensuring authenticity and lifecycle control via MIL-STD-11991B.

Testing & Reliability

Mastering environmental stress screening and vibration analysis (MIL-STD-202G).

Infrastructure & Safety

Unified Facilities Criteria (UFC) and NIJ ballistic protection standards.

Operational Efficiency

Digitizing intake to create audit-ready competency trails.

"Building a future-proof workforce requires the discipline of military standards combined with the accessibility of modern education."

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PARTS, MATERIALS, & PROCESSES (PM&P) MANAGEMENT

Source Authority: MIL-STD-11991B (3 Oct 2023)

Key Protocols:

- **COTS EVALUATION:** Decision matrices for Commercial Off-The-Shelf items.
- **OBSOLESCENCE MANAGEMENT:** Proactive tracking to anticipate component decline (Section 4.4.6).
- **CORROSION PREVENTION (CPC):** Mandatory requirements for long-term sustainment.

DoD APPROVED

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INTEGRITY & AUTHENTICITY: COUNTERFEIT PREVENTION

Reference: MIL-STD-11991B, Section 4.4.2 & Appendix F

AUTHORIZED SUPPLIER	BROKER / UNAUTHORIZED
Vetted by Original Component Manufacturer (OCM). Fully warranted. Low Risk.	Independent distributor. High risk of used, refurbished, or remarked parts.

THE GATEKEEPER CHECKLIST

1. TRACEABILITY
Is there a Certificate of Conformance (C of C)?

2. VISUAL INSPECTION
Check for sanding marks, blacktopping, or inconsistent lot codes (IDEASTD1010).

3. VALIDATION
Bar code consistency check and marking permanency tests.

DoD APPROVED

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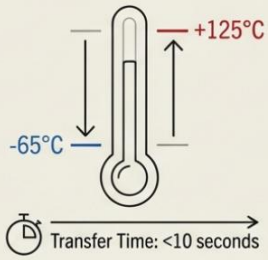
COMPONENT RELIABILITY: ENVIRONMENTAL STRESS SCREENING

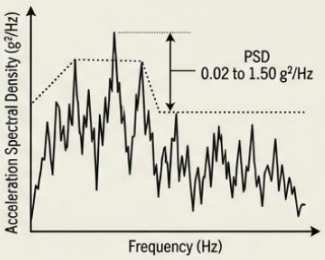
Source: MIL-STD-202G – Test Methods for Component Parts

METHOD 107G: THERMAL SHOCK



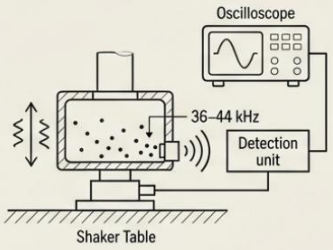
Objective: Resistance to extreme temp cycling.
Profile: -65°C to +125°C.
Transfer Time: <10 seconds.

METHOD 214A: RANDOM VIBRATION



Objective: Simulate operational environments (aircraft/missile).
Metric: PSD 0.02 to 1.50 g^2/Hz.
Duration: 15 min to 8 hours.

METHOD 217A: PIND



Objective: Particle Impact Noise Detection. Detect loose particles in sealed cavities using ultrasonic transducers (36–44 kHz).

DoD APPROVED

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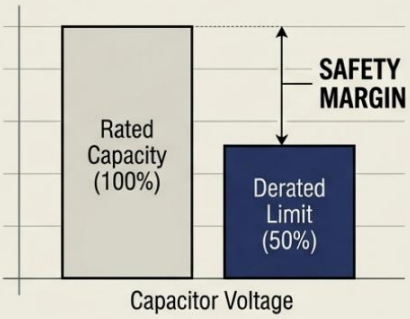
DEEP DIVE: DERATING FOR DURABILITY

Engineering safety margins (Source: MIL-STD-11991B Appendix)

Capacitors (Ceramic/Film)	0.50	Voltage Derating (50% Buffer)
Microcircuits (Digital)	0.80	Power Dissipation Factor
Diodes (Rectifier)	0.50	Surge Current Factor
Fiber Optic Cable	2.00x	Minimum Bend Radius

RATED CAPACITY VS. ALLOWED USAGE



RELIABILITY IS CALCULATED, NOT ASSUMED.

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SAFETY & INFRASTRUCTURE: NIJ & UFC STANDARDS

PERSONAL PROTECTION (NIJ)

NIJ Body Armor Classifications

- Type IIA: 9mm / .40 S&W
- Type II: .357 Magnum
- Type III: Rifles (7.62mm FMJ)
- Type IV: Armor Piercing (.30 cal M2 AP)

Metric: Fair Hit requirements & Backface Signature limits.

FACILITY LIFECYCLE (UFC)

MIL-STD-3007F: Unified Facilities Criteria (UFC)
The Master Standard for DoD Planning, Design, & Construction.

Workflow: Draft ⟶ Review ⟶ Approval ⟶ Validation ⟶ Sustainment.

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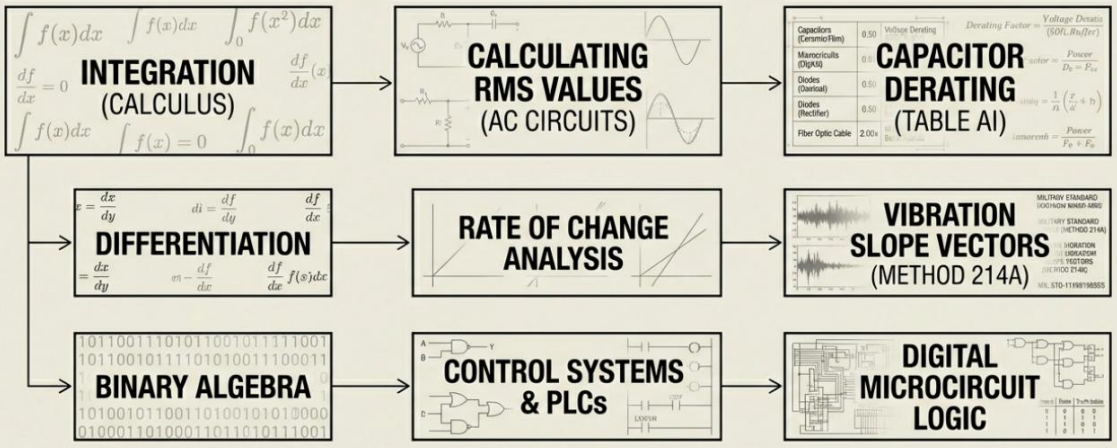
INTEGRATING MATH INTO ENGINEERING PEDAGOGY

Connecting Mathematical Theory to MIL-STD Compliance



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THE COMPETENCY MATRIX: FROM STANDARD TO SKILL

SOURCE DOCUMENT	TECHNICAL DOMAIN	CAREER OUTCOME
MIL-STD-11991B	Supply Chain & Authenticity	**SUPPLY CHAIN AUDIT SPECIALIST**
MIL-STD-202G	Environmental Stress Screening	**RELIABILITY TEST TECHNICIAN**
MIL-STD-3007F	Facility Lifecycle Management	**INFRASTRUCTURE COMPLIANCE OFFICER**
NIJ STANDARDS	Ballistic Materials Testing	**SAFETY EQUIPMENT QA/QC**

Curriculum designed to produce audit-ready professionals.

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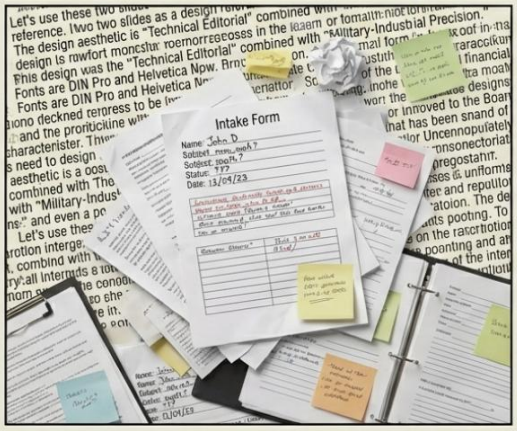
OPERATIONAL EXCELLENCE: DIGITAL INTAKE TRANSFORMATION

Optimizing the Sci-Bono Walk-In Center Client Journey

CURRENT STATE (Manual/Paper)



FUTURE STATE (Digital/Audit-Ready)

- Data Validation
- Automated Analytics
- CRM Integration
- Client Confidentiality

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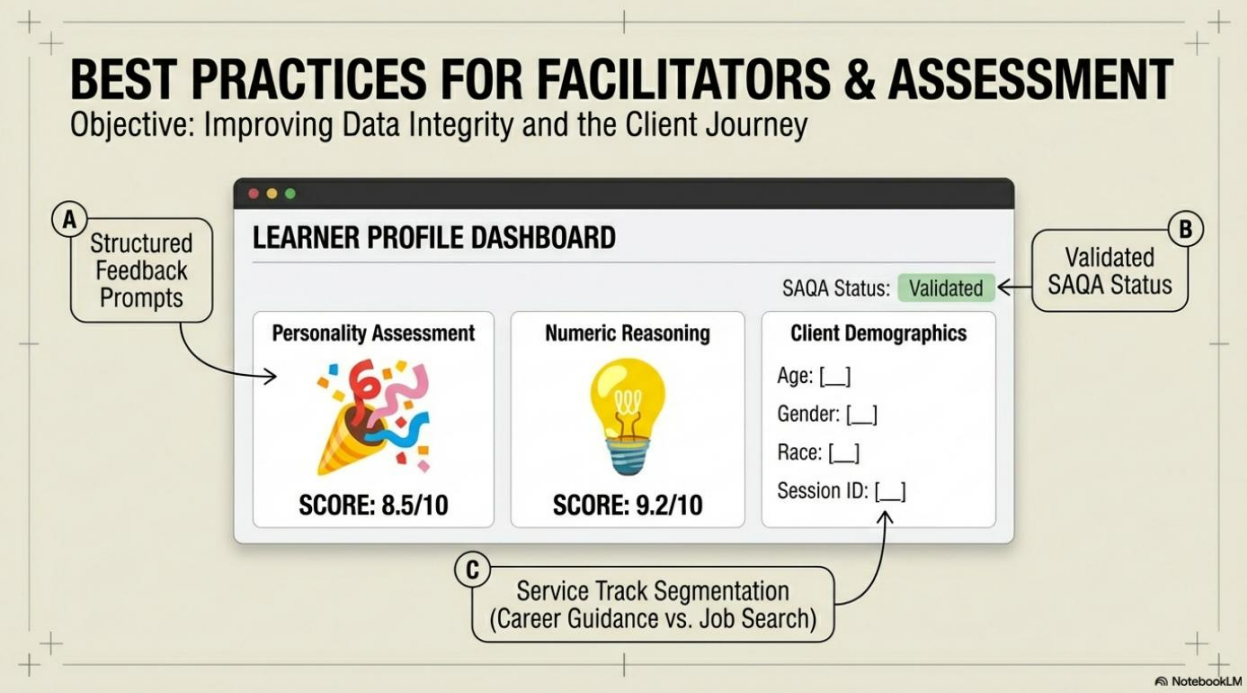
BEST PRACTICES FOR FACILITATORS & ASSESSMENT
Objective: Improving Data Integrity and the Client Journey
A
Structured Feedback Prompts
LEARNER PROFILE DASHBOARD
B
Validated SAQA Status
SAQA Status: Validated
Personality Assessment
SCORE: 8.5/10
Numeric Reasoning
SCORE: 9.2/10
Client Demographics
Age: [__]
Gender: [__]
Race: [__]
Session ID: [__]
C
Service Track Segmentation (Career Guidance vs. Job Search)
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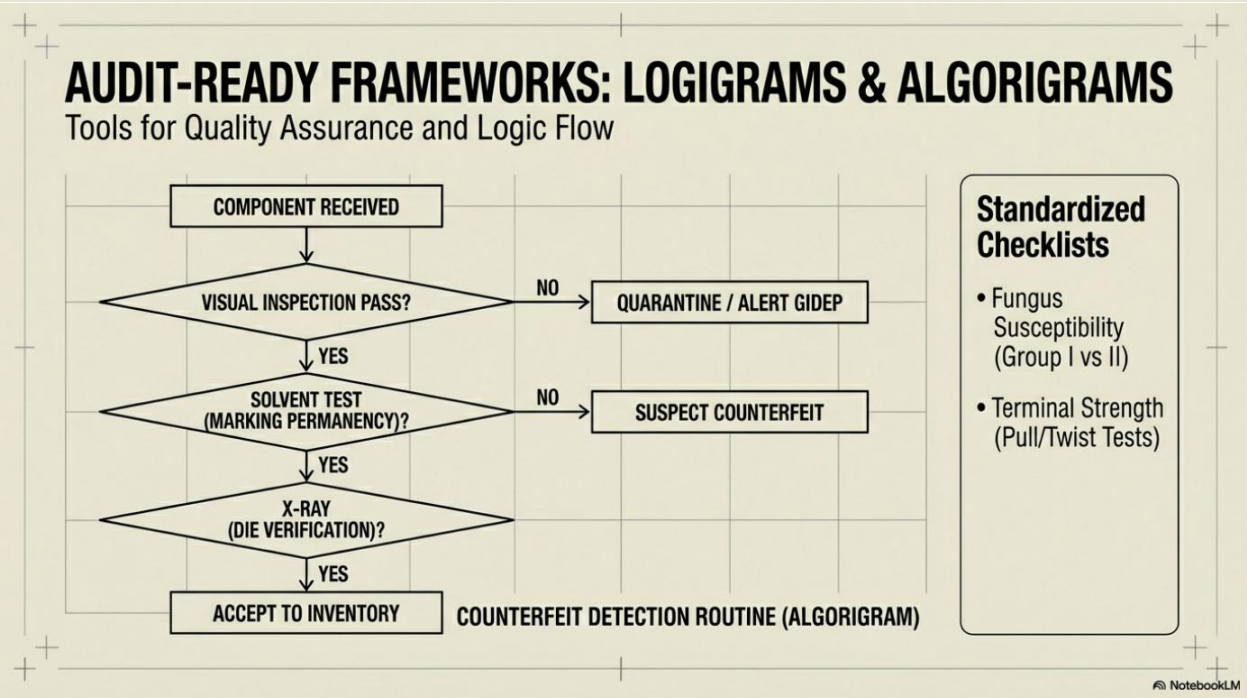
AUDIT-READY FRAMEWORKS: LOGIGRAMS & ALGORIGRAMS
Tools for Quality Assurance and Logic Flow
COMPONENT RECEIVED
VISUAL INSPECTION PASS?
NO
QUARANTINE / ALERT GIDEP
YES
SOLVENT TEST (MARKING PERMANENCY)?
NO
SUSPECT COUNTERFEIT
YES
X-RAY (DIE VERIFICATION)?
YES
ACCEPT TO INVENTORY
COUNTERFEIT DETECTION ROUTINE (ALGORIGRAM)
Standardized Checklists
• Fungus Susceptibility (Group I vs II)
• Terminal Strength (Pull/Twist Tests)
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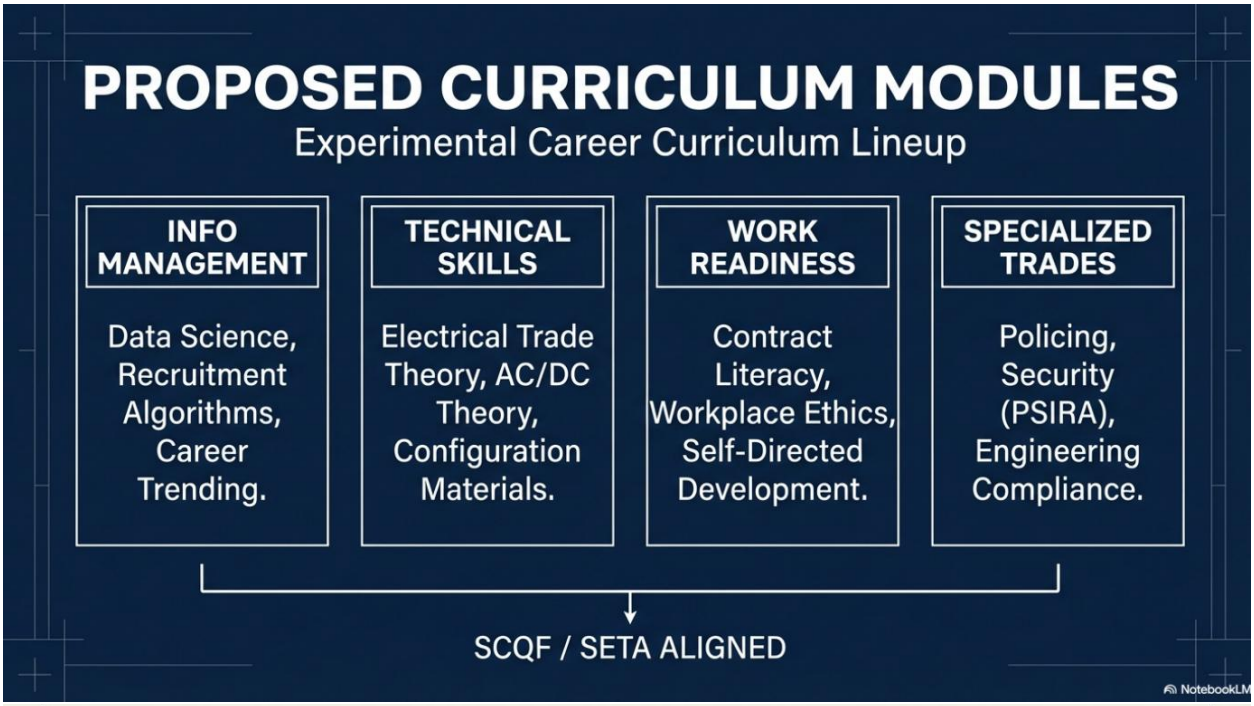
PROPOSED CURRICULUM MODULES
Experimental Career Curriculum Lineup
INFO MANAGEMENT
Data Science, Recruitment Algorithms, Career Trending.
TECHNICAL SKILLS
Electrical Trade Theory, AC/DC Theory, Configuration Materials.
WORK READINESS
Contract Literacy, Workplace Ethics, Self-Directed Development.
SPECIALIZED TRADES
Policing, Security (PSIRA), Engineering Compliance.
SCQF / SETA ALIGNED
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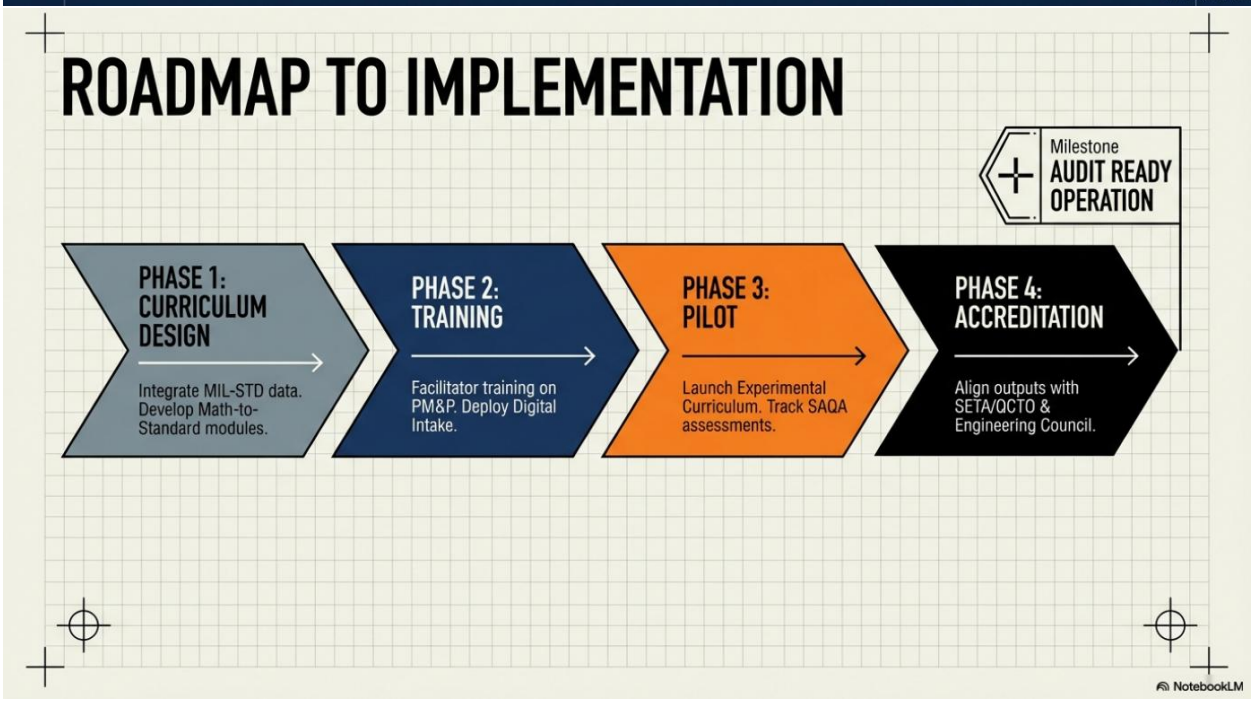
ROADMAP TO IMPLEMENTATION
Milestone
AUDIT READY OPERATION
PHASE 1: CURRICULUM DESIGN
Integrate MIL-STD data. Develop Math-to-Standard modules.
PHASE 2: TRAINING
Facilitator training on PM&P. Deploy Digital Intake.
PHASE 3: PILOT
Launch Experimental Curriculum. Track SAQA assessments.
PHASE 4: ACCREDITATION
Align outputs with SETA/QCTO & Engineering Council.
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THE STANDARD
FOR THE FUTURE
DISCIPLINE. RELIABILITY. EXCELLENCE.
1. INITIATE CURRICULUM AUDIT
2. DEPLOY DIGITAL INTAKE
3. STANDARDIZE THE SKILL
AUDIT READY
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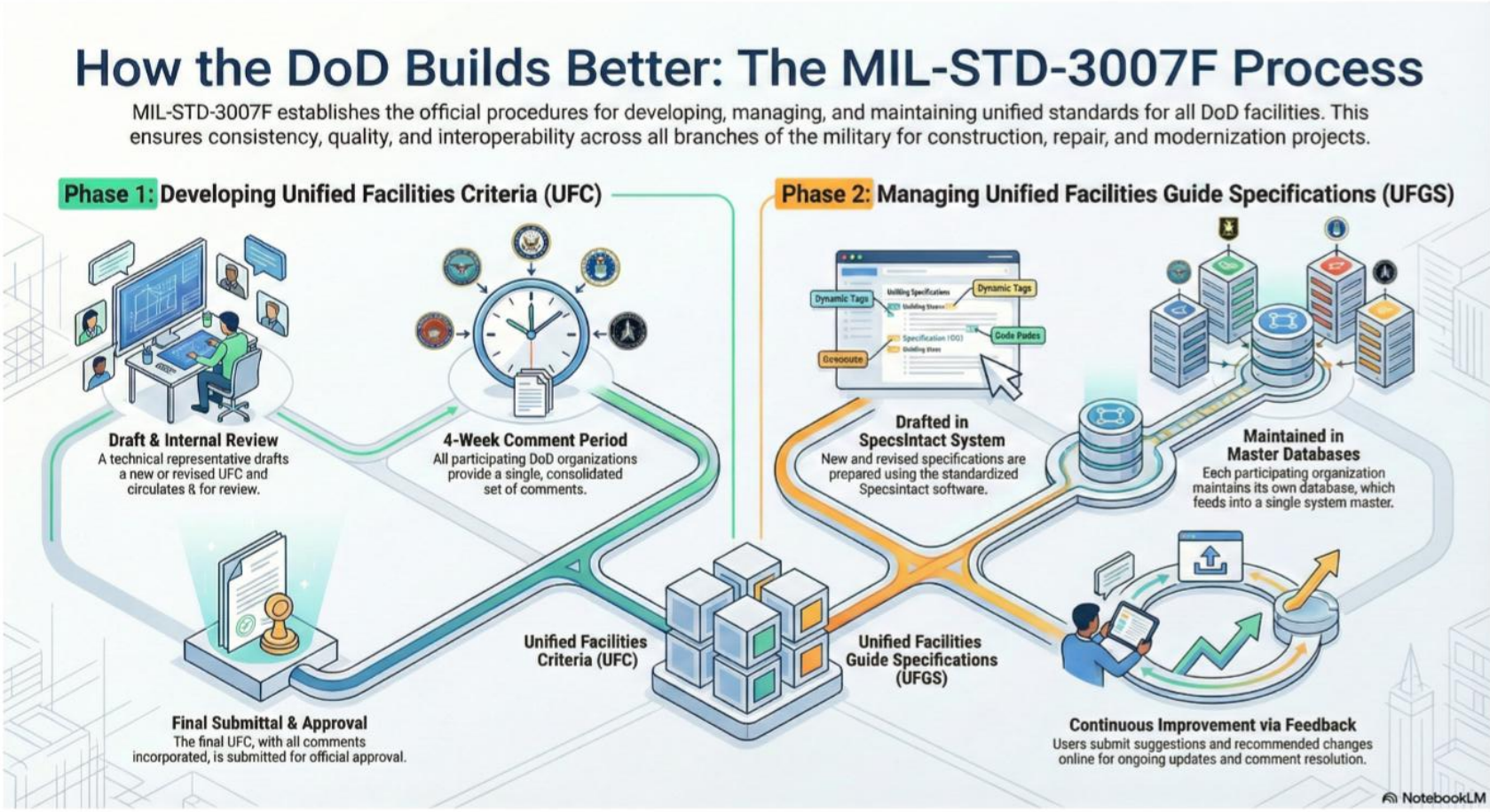
How the DoD Builds Better: The MIL-STD-3007F Process

MIL-STD-3007F establishes the official procedures for developing, managing, and maintaining unified standards for all DoD facilities. This ensures consistency, quality, and interoperability across all branches of the military for construction, repair, and modernization projects.


Phase 1: Developing Unified Facilities Criteria (UFC)
Phase 2: Managing Unified Facilities Guide Specifications (UFGS)
Draft & Internal Review
A technical representative drafts a new or revised UFC and circulates & for review.
4-Week Comment Period
All participating DoD organizations provide a single, consolidated set of comments.
Final Submittal & Approval
The final UFC, with all comments incorporated, is submitted for official approval.
Unified Facilities Criteria (UFC)
Unified Facilities Guide Specifications (UFGS)
Drafted in SpecsIntact System
New and revised specifications are prepared using the standardized Specsintact software.
Maintained in Master Databases
Eech participating organization maintains its own database, which feeds into a single system master.
Continuous Improvement via Feedback
Users submit suggestions and recommended changes online for ongoing updates and comment resolution.
Dynamic Tags
Dynamic Tags
Code Pades
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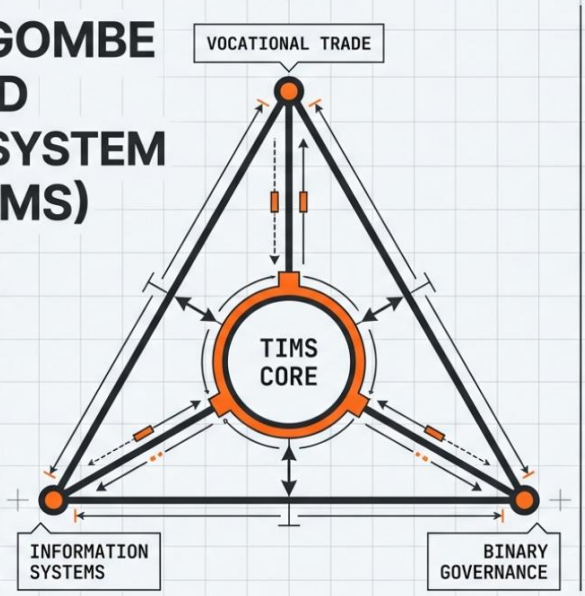
THE TSHINGOMBE INTEGRATED MODULAR SYSTEM SYSTEM (TIMS)

A Legacy-Ready Framework for Education, Governance, and Engineering.



Architect:
Tshingombe Tshitadi Fiston

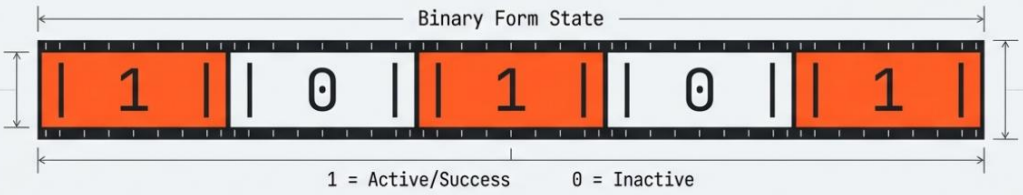
Contact:
tshingombefiston@gmail.com

Mission:
Bridging the gap between manual trade skills and digital information systems through rigorous, code-driven logic.

Core Promise: Modular. Bilingual (En/Fr). Audit-Ready. Legacy Compatible (Office 2007+).

NotebookLM

Core Philosophy: Logic & Compatibility



Audit-Ready

Interaction tracking via binary flags. Aggregation logic: Kfrm1 = S1 + SUM(K1 to K17).

Bilingual Pedagogy

Seamless toggling for national standards. Example: Week/Semaine, Role/Rôle.

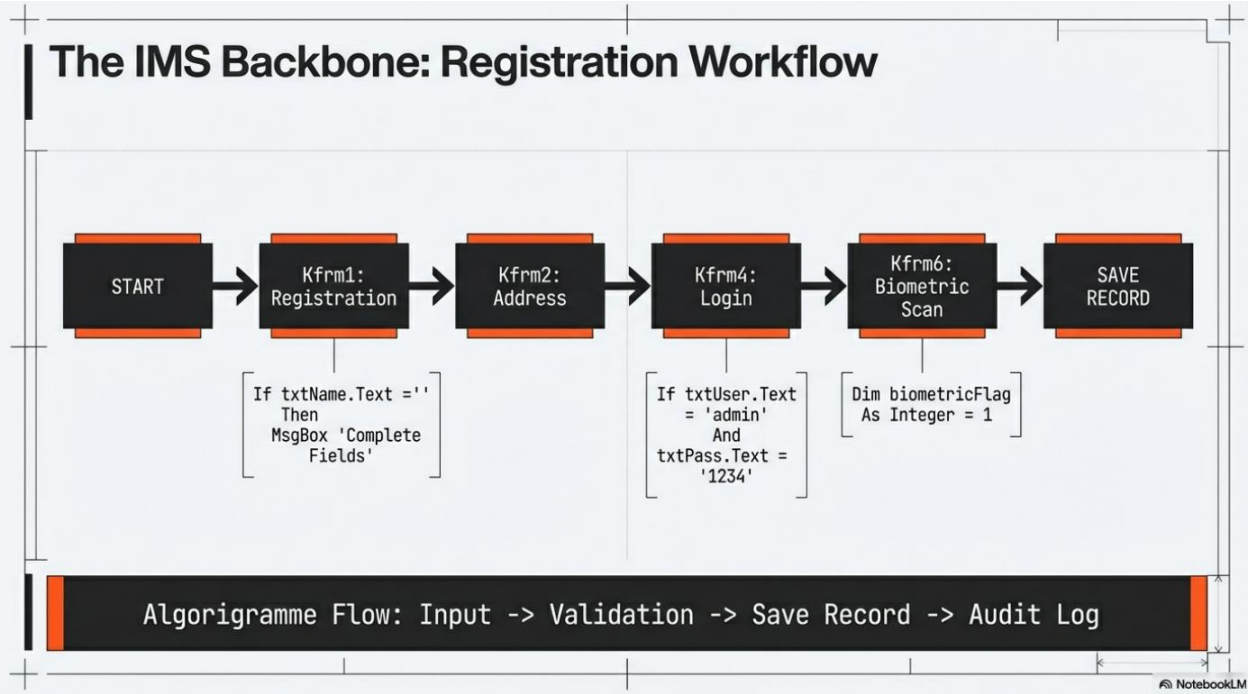
Legacy Compatibility

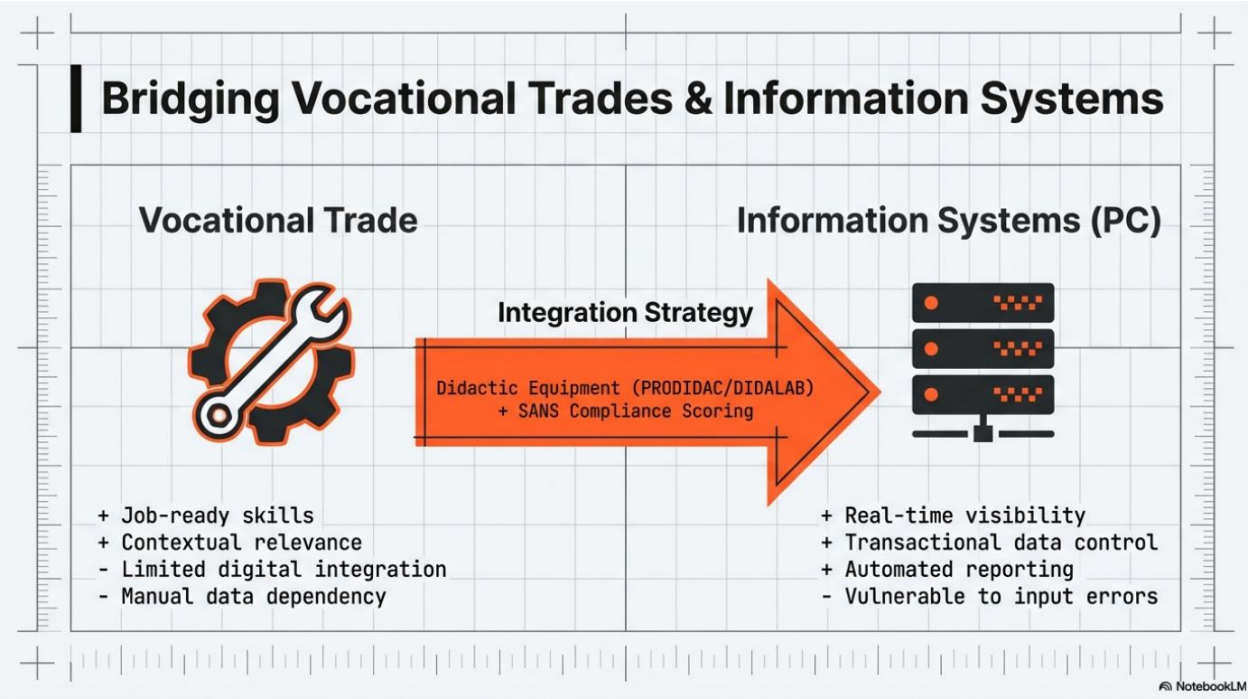
Designed for Office 2007+. Min Requirements: 500 MHz Processor, 256 MB RAM.

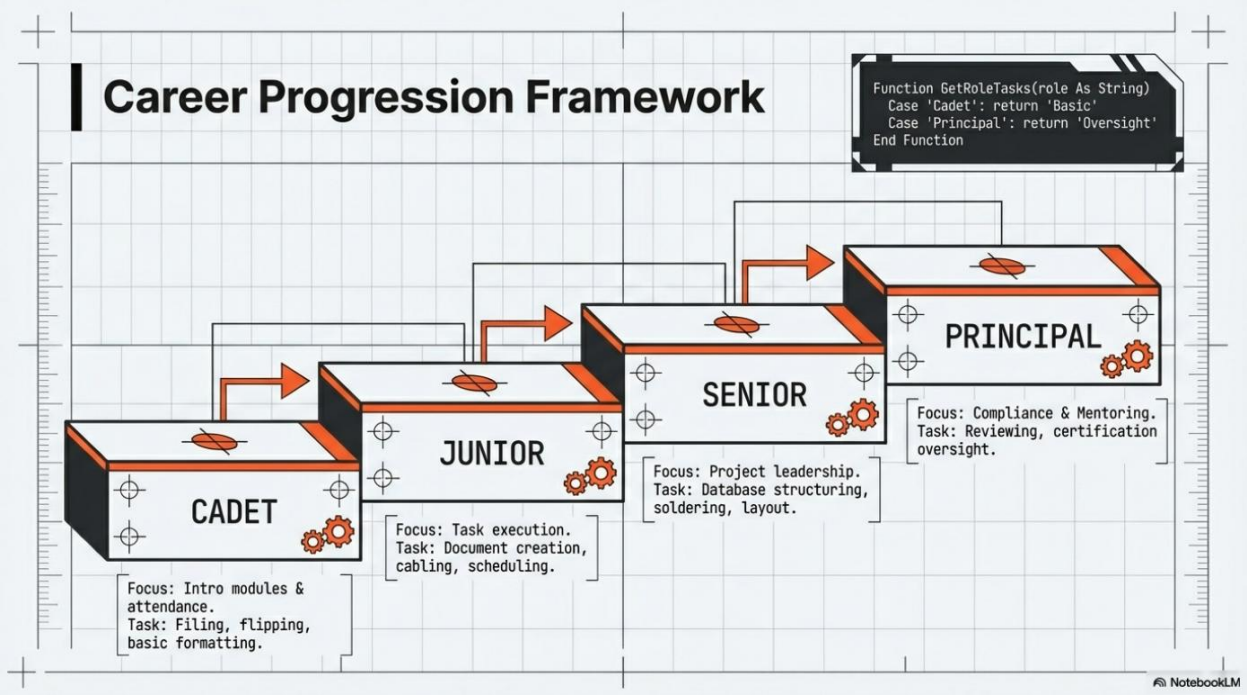
The 'Struct' Concept

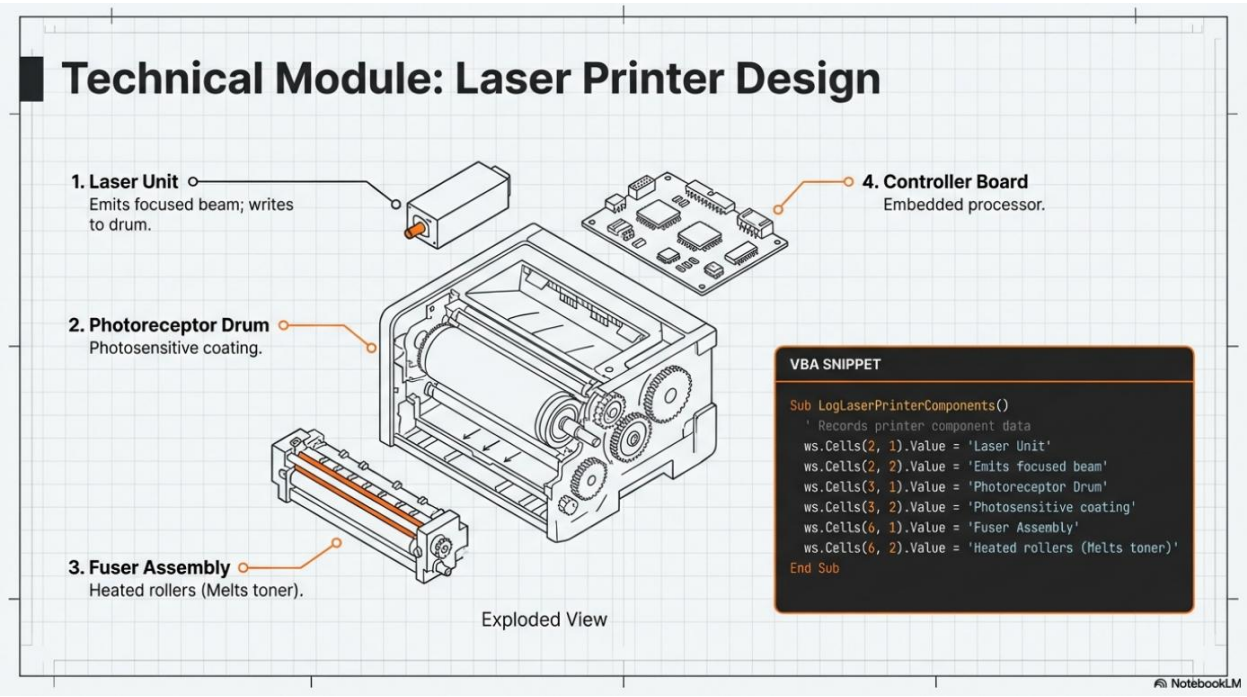
VBA simulation of class behavior bridging data types with topological limits.

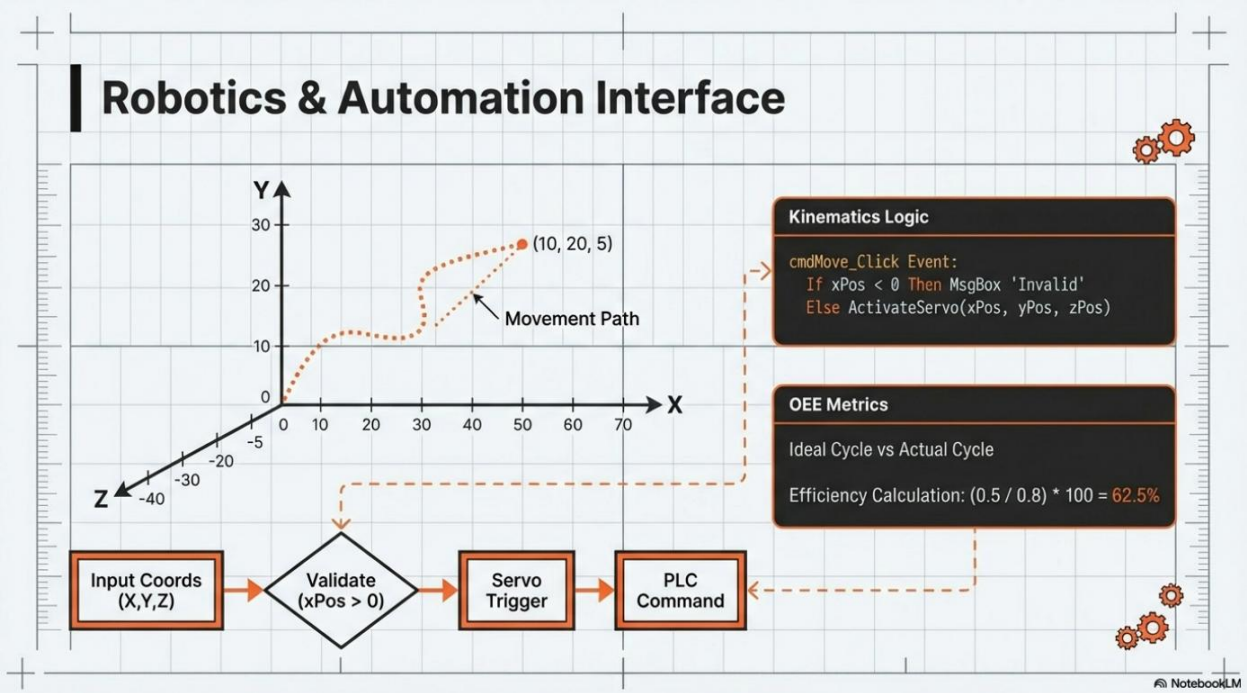
NotebookLM

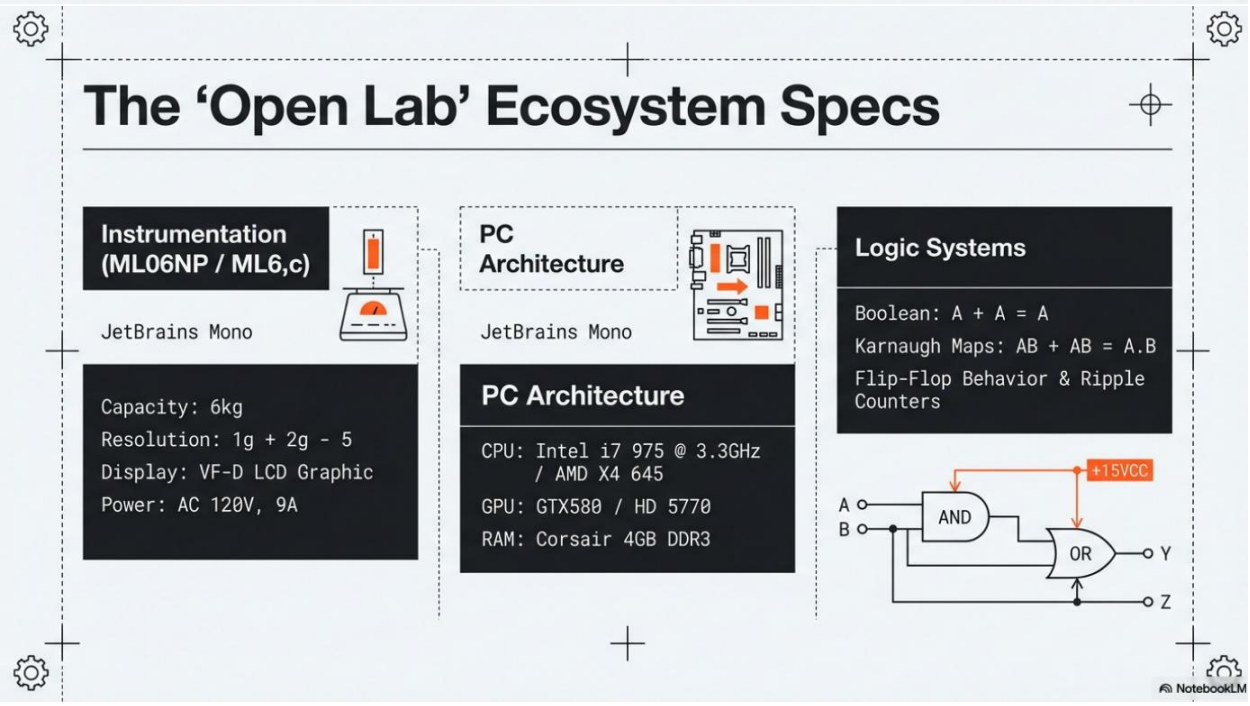

The IMS Backbone: Registration Workflow
START
Kfrm1: Registration
Kfrm2: Address
Kfrm4: Login
Kfrm6: Biometric Scan
SAVE RECORD
If txtName.Text ='' Then MsgBox 'Complete Fields'
If txtUser.Text = 'admin' And txtPass.Text = '1234'
Dim biometricFlag As Integer = 1
Algorigramme Flow: Input -> Validation -> Save Record -> Audit Log
NotebookLM


Bridging Vocational Trades & Information Systems
Vocational Trade
Information Systems (PC)
Integration Strategy
Didactic Equipment (PRODIDAC/DIDALAB) + SANS Compliance Scoring
+ Job-ready skills
+ Contextual relevance
- Limited digital integration
- Manual data dependency
+ Real-time visibility
+ Transactional data control
+ Automated reporting
- Vulnerable to input errors
NotebookLM


Career Progression Framework
Function GetRoleTasks(role As String)
Case 'Cadet': return 'Basic'
Case 'Principal': return 'Oversight'
End Function
CADET
JUNIOR
SENIOR
PRINCIPAL
Focus: Intro modules & attendance.
Task: Filing, flipping, basic formatting.
Focus: Task execution.
Task: Document creation, cabling, scheduling.
Focus: Project leadership.
Task: Database structuring, soldering, layout.
Focus: Compliance & Mentoring.
Task: Reviewing, certification oversight.
NotebookLM


Technical Module: Laser Printer Design
1. Laser Unit
Emits focused beam; writes to drum.
2. Photoreceptor Drum
Photosensitive coating.
3. Fuser Assembly
Heated rollers (Melts toner).
4. Controller Board
Embedded processor.
Exploded View
VBA SNIPPET
Sub LogLaserPrinterComponents()
' Records printer component data
ws.Cells(2, 1).Value = 'Laser Unit'
ws.Cells(2, 2).Value = 'Emits focused beam'
ws.Cells(3, 1).Value = 'Photoreceptor Drum'
ws.Cells(3, 2).Value = 'Photosensitive coating'
ws.Cells(6, 1).Value = 'Fuser Assembly'
ws.Cells(6, 2).Value = 'Heated rollers (Melts toner)'
End Sub
NotebookLM


Robotics & Automation Interface
Y
30
20
10
0
X
0 10 20 30 40 50 60 70
-5
-20
-30
-40
Z
(10, 20, 5)
Movement Path
Kinematics Logic
cmdMove_Click Event:
If xPos < 0 Then MsgBox 'Invalid'
Else ActivateServo(xPos, yPos, zPos)
OEE Metrics
Ideal Cycle vs Actual Cycle
Efficiency Calculation: (0.5 / 0.8) * 100 = 62.5%
Input Coords (X,Y,Z)
Validate (xPos > 0)
Servo Trigger
PLC Command
NotebookLM


The 'Open Lab' Ecosystem Specs
Instrumentation (ML06NP / ML6,c)
JetBrains Mono
Capacity: 6kg
Resolution: 1g + 2g - 5
Display: VF-D LCD Graphic
Power: AC 120V, 9A
PC Architecture
JetBrains Mono
PC Architecture
CPU: Intel i7 975 @ 3.3GHz / AMD X4 645
GPU: GTX580 / HD 5770
RAM: Corsair 4GB DDR3
Logic Systems
Boolean: A + A = A
Karnaugh Maps: AB + AB = A.B
Flip-Flop Behavior & Ripple Counters
+15VCC
A
B
AND
OR
Y
Z
NotebookLM

Binary Finance & Inventory Ledgers

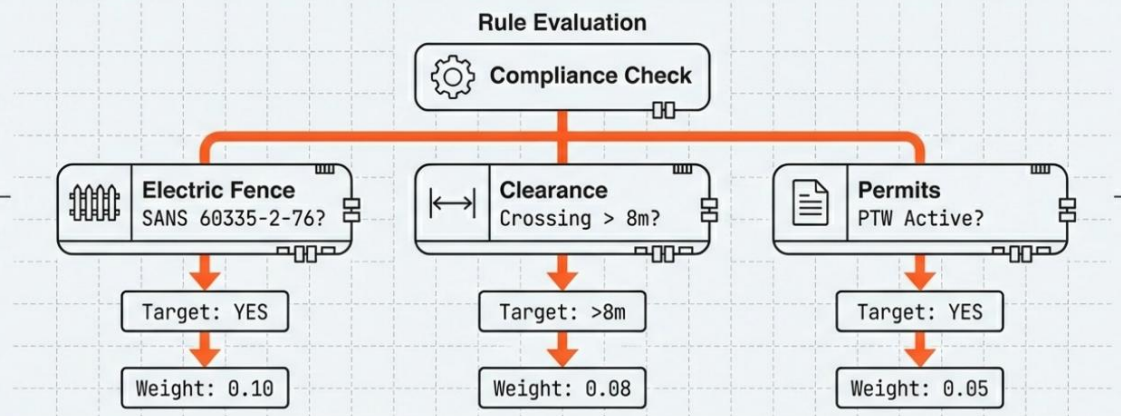
Binary ID	Description	Unit Price (ZAR)	Total Value
0099636632	Instructional Cluster	50,000.00	50,000.00
2098900	Electrical Components	200,989,878	200,989,878
0099636963	Safe Secure Policy Module	50,096,996	50,096,996

Summary Metrics

Net Sales: R1,701,869,558.00
VAT Status: Reconciliation Required
FilterLogic: Prefix '009' = Education

NotebookLM

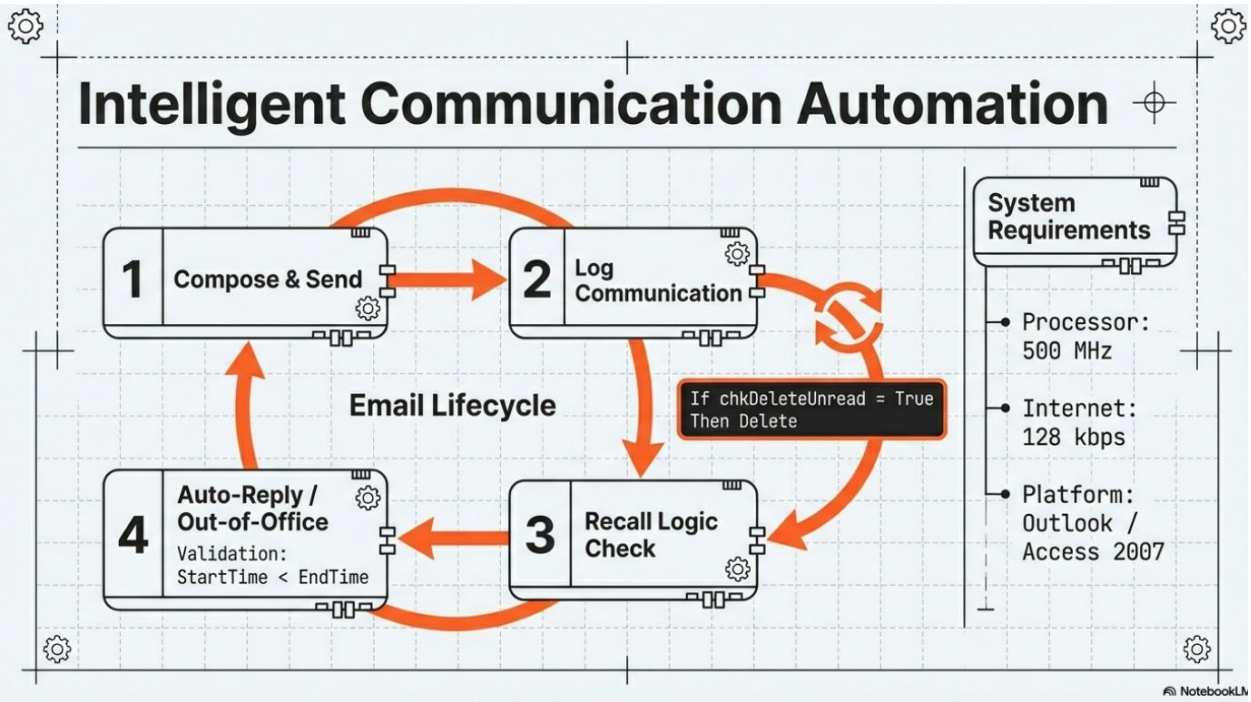
Compliance & Governance Engine

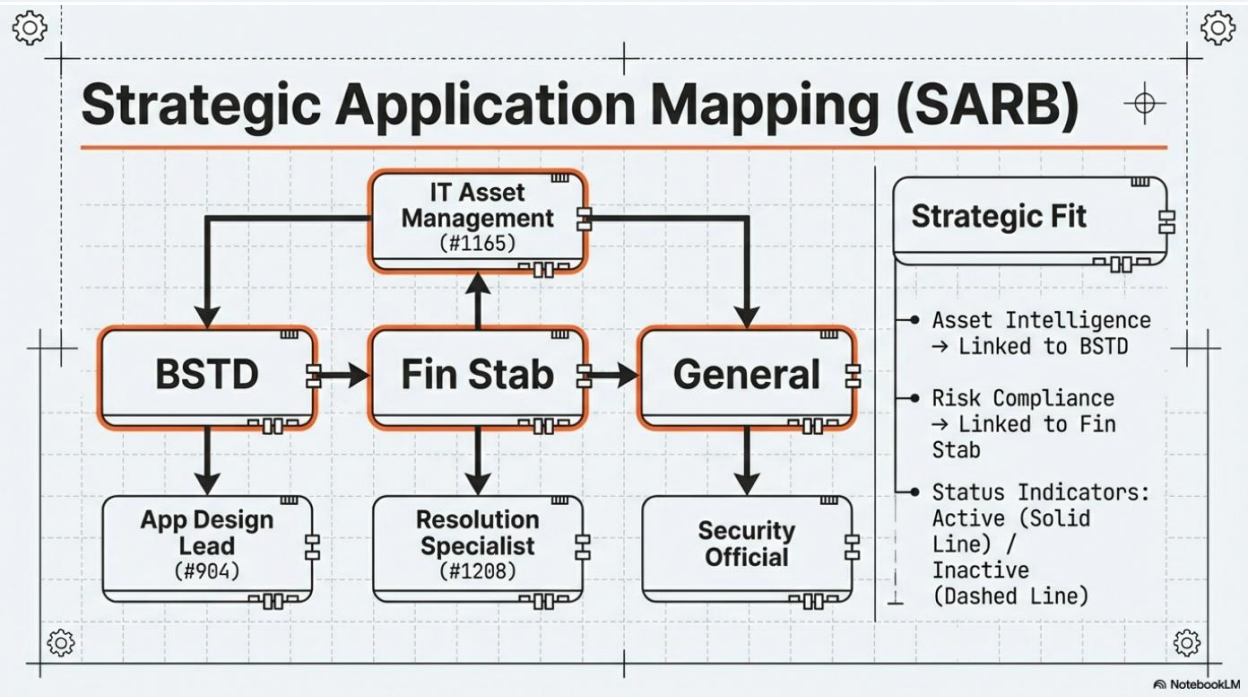


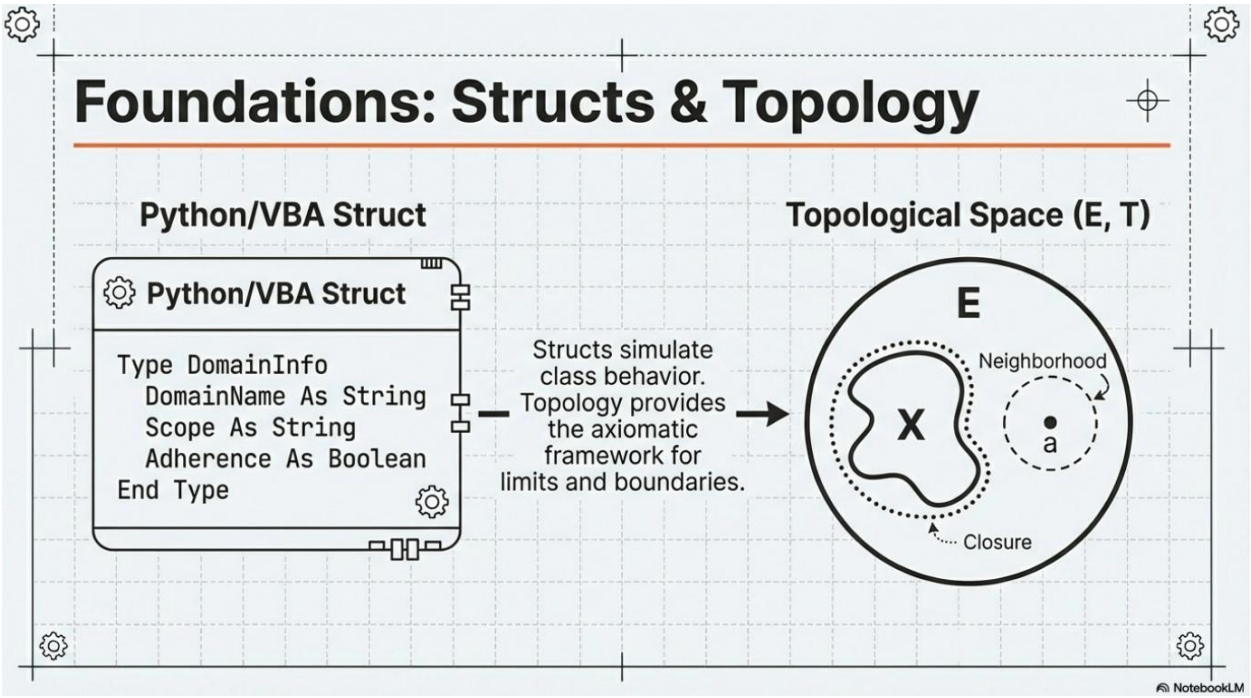
Scoring Engine Code:

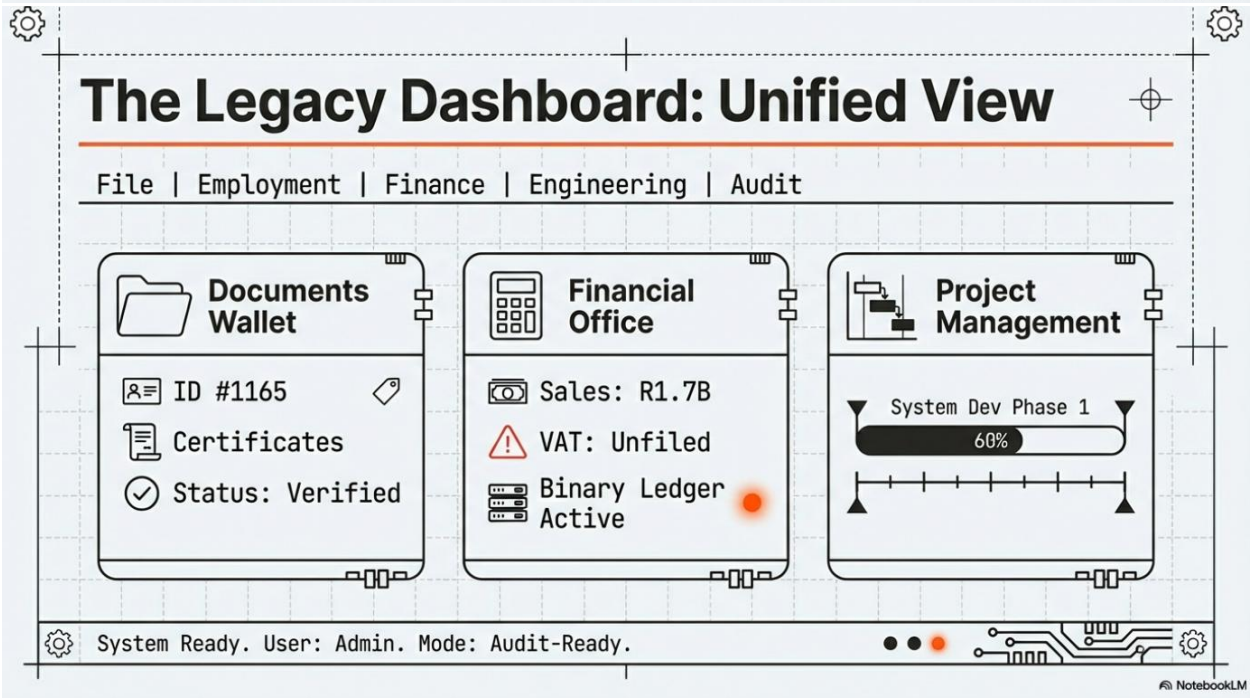
```
Score = IIf(passRule, weight, 0#)
GenerateReport('RPT-YYMMDD')
```

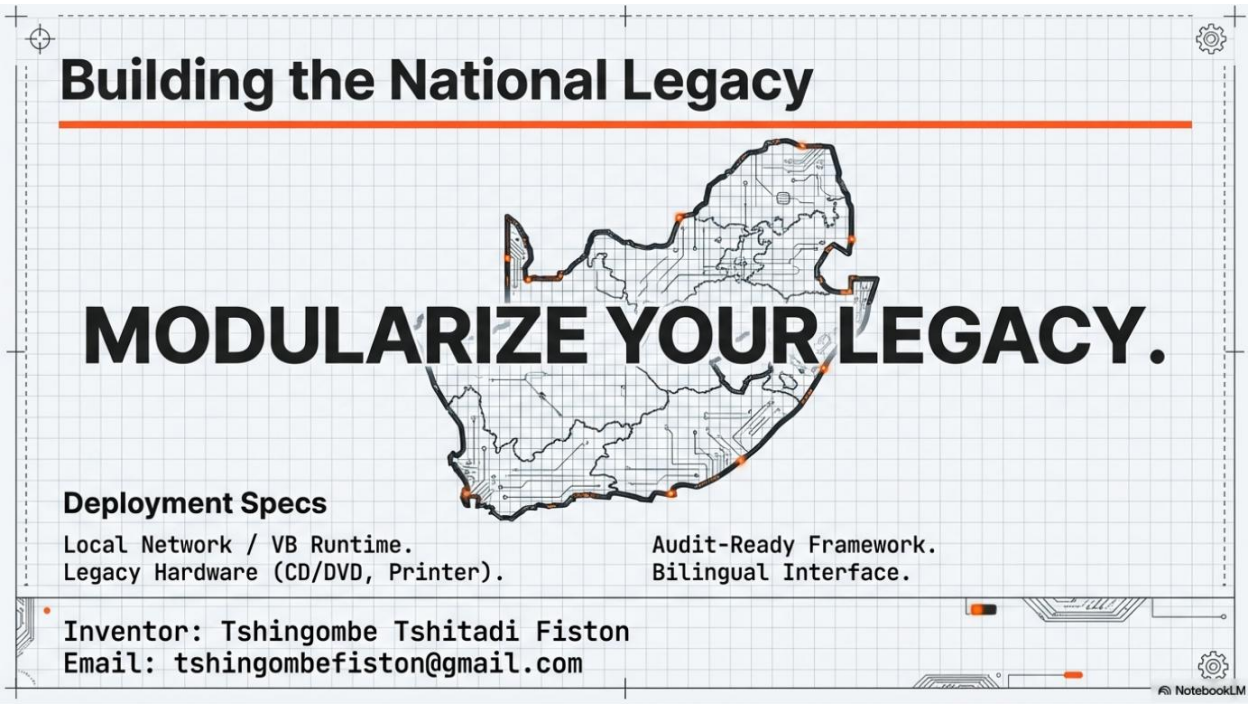
NotebookLM

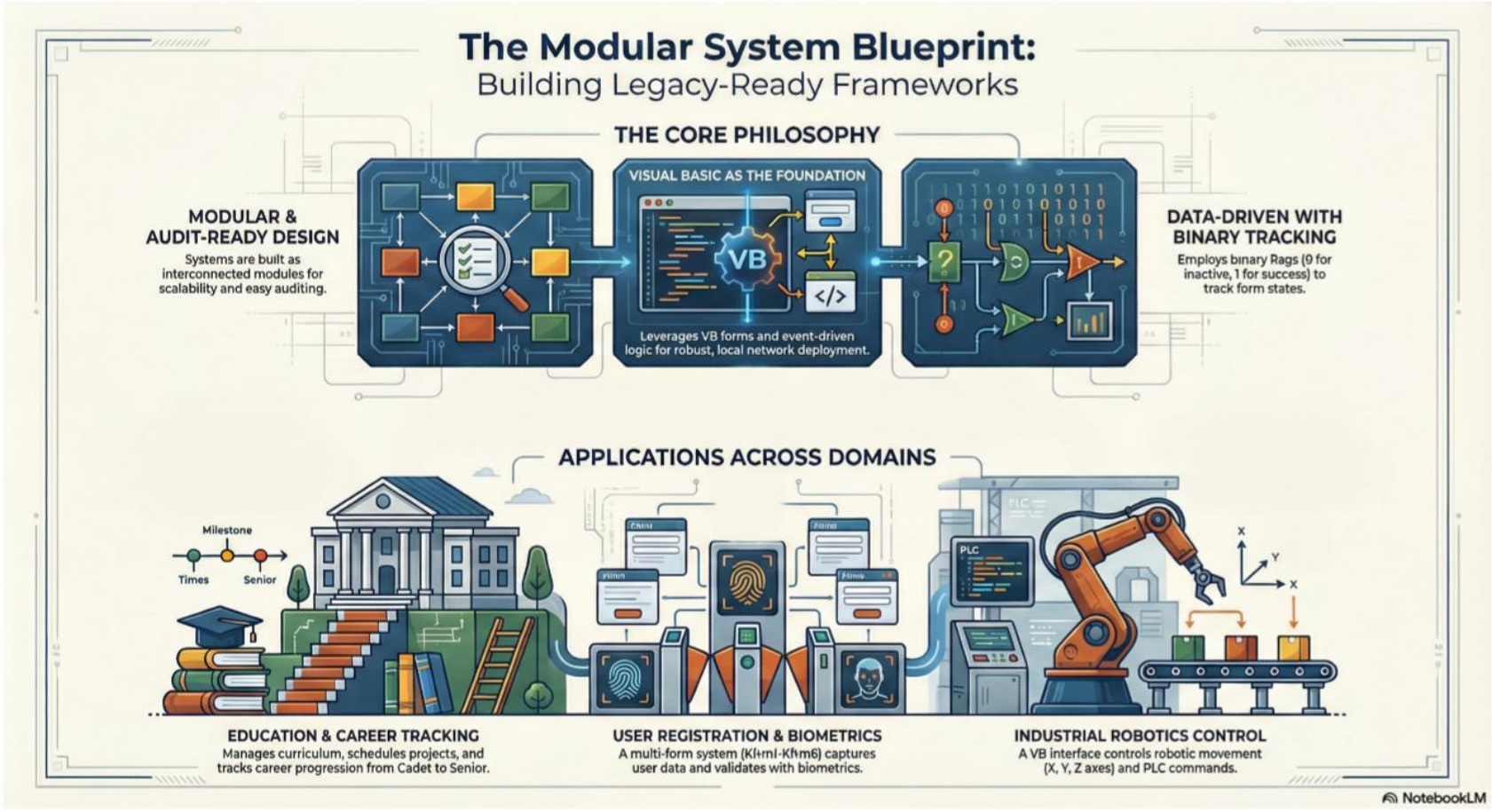

Intelligent Communication Automation
1
Compose & Send
2
Log Communication
Email Lifecycle
If chkDeleteUnread = True Then Delete
4
Auto-Reply / Out-of-Office
Validation: StartTime < EndTime
3
Recall Logic Check
System Requirements
Processor: 500 MHz
Internet: 128 kbps
Platform: Outlook / Access 2007
NotebookLM


Strategic Application Mapping (SARB)
IT Asset Management (#1165)
BSTD
Fin Stab
General
App Design Lead (#904)
Resolution Specialist (#1208)
Security Official
Strategic Fit
Asset Intelligence → Linked to BSTD
Risk Compliance → Linked to Fin Stab
Status Indicators: Active (Solid Line) / Inactive (Dashed Line)
NotebookLM


Foundations: Structs & Topology
Python/VBA Struct
Topological Space (E, T)
Python/VBA Struct
Type DomainInfo
DomainName As String
Scope As String
Adherence As Boolean
End Type
Structs simulate class behavior. Topology provides the axiomatic framework for limits and boundaries.
E
X
a
Neighborhood
Closure
NotebookLM


The Legacy Dashboard: Unified View
File | Employment | Finance | Engineering | Audit
Documents Wallet
ID #1165
Certificates
Status: Verified
Financial Office
Sales: R1.7B
VAT: Unfiled
Binary Ledger Active
Project Management
System Dev Phase 1
60%
System Ready. User: Admin. Mode: Audit-Ready.
NotebookLM


Building the National Legacy
MODULARIZE YOUR LEGACY.
Deployment Specs
Local Network / VB Runtime.
Legacy Hardware (CD/DVD, Printer).
Audit-Ready Framework.
Bilingual Interface.
Inventor: Tshingombe Tshitadi Fiston
Email: tshingombefiston@gmail.com
NotebookLM


The Modular System Blueprint:
Building Legacy-Ready Frameworks
THE CORE PHILOSOPHY
MODULAR & AUDIT-READY DESIGN
Systems are built as interconnected modules for scalability and easy auditing.
VISUAL BASIC AS THE FOUNDATION
VB
Leverages VB forms and event-driven logic for robust, local network deployment.
DATA-DRIVEN WITH BINARY TRACKING
Employs binary flags (0 for inactive, 1 for success) to track form states.
APPLICATIONS ACROSS DOMAINS
Milestone
Times
Senior
PLC
X
Y
X
EDUCATION & CAREER TRACKING
Manages curriculum, schedules projects, and tracks career progression from Cadet to Senior.
USER REGISTRATION & BIOMETRICS
A multi-form system (Kf•rnI-Kf•m6) captures user data and validates with biometrics.
INDUSTRIAL ROBOTICS CONTROL
A VB interface controls robotic movement (X, Y, Z axes) and PLC commands.
NotebookLM

The Living Curriculum: A Blueprint for Resilient Engineering Careers

Integrating Technical Mastery, Bureaucratic Resilience, and Social Impact in the South African Vocational Landscape

AUTHOR: TSHINGOMBE TSHITADI
BASED ON THE ACADEMIC PORTFOLIO & NATED FRAMEWORK

TITLE BLOCK | REVISION A
PROJECT: ENG. RESILIENCE

NotebookLM

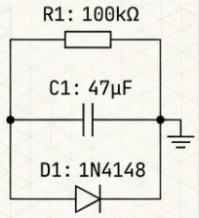
THE DUAL CHALLENGE: ENGINEERING PRECISION VS. ADMINISTRATIVE ENTROPY

THE ENGINEER (ORDER)

$$\int_a^b f(x)\,dx = F(b) - F(a)$$

$$\nabla \cdot \mathbf{E} = \frac{\rho}{\varepsilon_0}$$

$$H(s) = \frac{K}{1 + T \cdot s}$$



- Physics & Calculus
- MIL-STD-11991B Standards
- Control Systems Logic
- Deterministic Outcomes

THE SYSTEM (CHAOS)

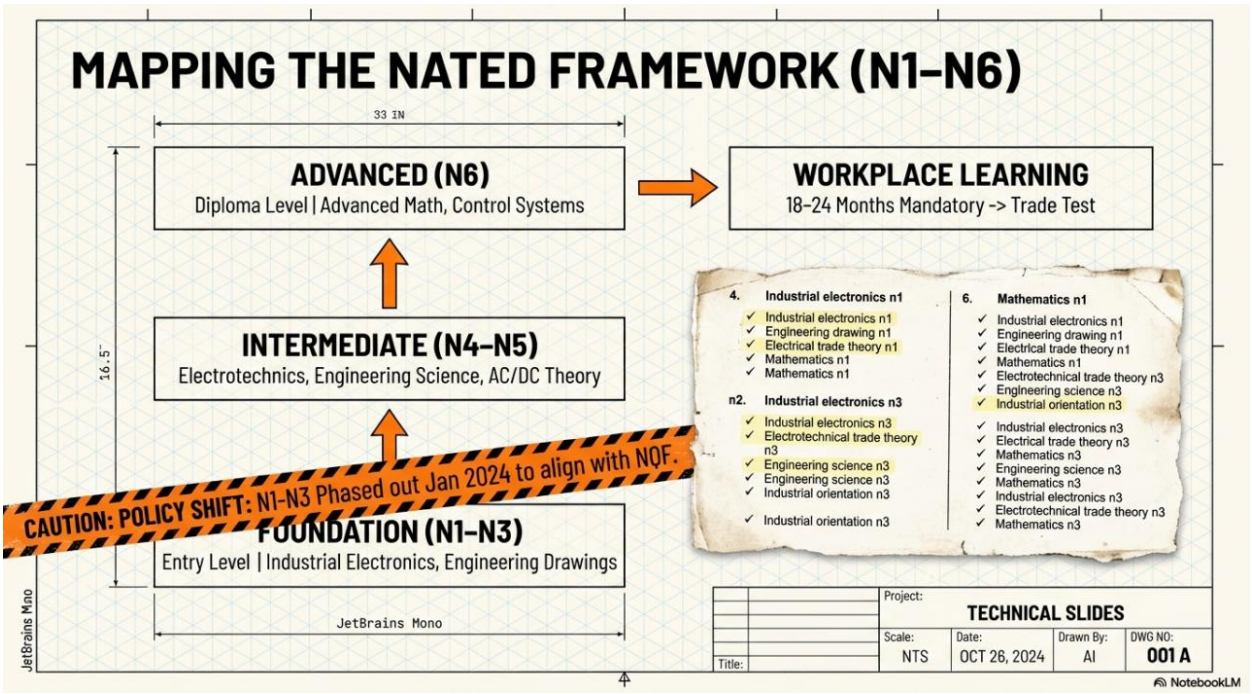
- SAQA Compliance Hurdles
- Certification Backlogs
- Exam Irregularities
- Unpredictable Variables

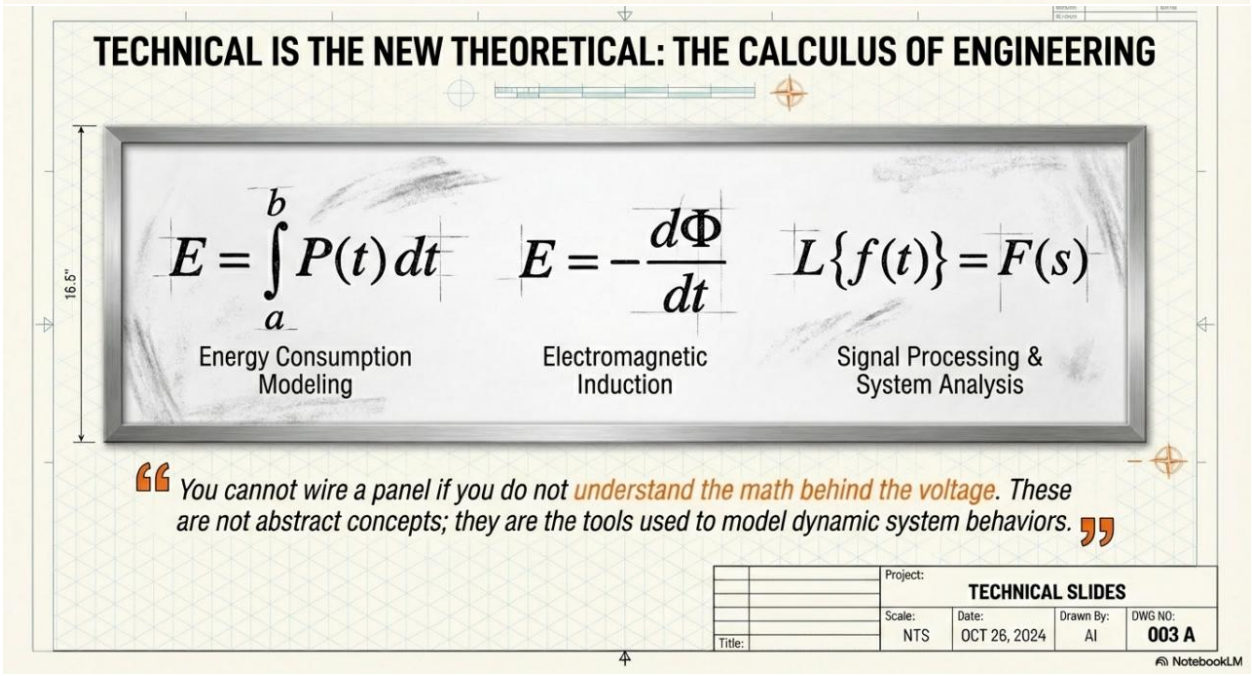
CORE INSIGHT: The Resume is Dead; The Portfolio is Alive. A modern career requires navigating the friction between rigorous laws of physics and the unpredictable variables of the qualification system.

PROJECT: TECHNICAL SLIDES		
DATE: OCT 26, 2024		
SCALE: NTS	DWG NO: 001	REV A
DRAWN BY: AI		

REV | REVISION | ROKEX

NotebookLM


MAPPING THE NATED FRAMEWORK (N1–N6)
33 IN
ADVANCED (N6)
Diploma Level | Advanced Math, Control Systems
WORKPLACE LEARNING
18–24 Months Mandatory -> Trade Test
INTERMEDIATE (N4–N5)
Electrotechnics, Engineering Science, AC/DC Theory
16.5"
CAUTION: POLICY SHIFT: N1-N3 Phased out Jan 2024 to align with NQF.
FOUNDATION (N1–N3)
Entry Level | Industrial Electronics, Engineering Drawings
JetBrains Mono
JetBrains Mono
4. Industrial electronics n1
Industrial electronics n1
Engineering drawing n1
Electrical trade theory n1
Mathematics n1
Mathematics n1
n2. Industrial electronics n3
Industrial electronics n3
Electrotechnical trade theory n3
Engineering science n3
Engineering science n3
Industrial orientation n3
Industrial orientation n3
6. Mathematics n1
Industrial electronics n1
Engineering drawing n1
Electrical trade theory n1
Mathematics n1
Electrotechnical trade theory n3
Engineering science n3
Industrial orientation n3
Industrial electronics n3
Electrical trade theory n3
Mathematics n3
Engineering science n3
Mathematics n3
Industrial electronics n3
Electrotechnical trade theory n3
Mathematics n3
Project:
TECHNICAL SLIDES
Title:
Scale: NTS
Date: OCT 26, 2024
Drawn By: AI
DWG NO: 001 A
NotebookLM


TECHNICAL IS THE NEW THEORETICAL: THE CALCULUS OF ENGINEERING
16.5"
$E = \int_a^b P(t)\,dt$
Energy Consumption Modeling
$E = -\frac{d\Phi}{dt}$
Electromagnetic Induction
$L\{f(t)\} = F(s)$
Signal Processing & System Analysis
"You cannot wire a panel if you do not understand the math behind the voltage. These are not abstract concepts; they are the tools used to model dynamic system behaviors."
Project:
TECHNICAL SLIDES
Title:
Scale: NTS
Date: OCT 26, 2024
Drawn By: AI
DWG NO: 003 A
NotebookLM

THE ENGINEER'S TOOLKIT: FROM MICROCONTROLLERS TO MIL-SPEC

HARDWARE

- Transformers (Single/Three-phase)
- Motors (DC/AC)
- PLCs (PIC32 Embedded Controllers)
- Rectifiers & Power Supplies

SOFTWARE & CODE

- Visual Basic & Python (Automation)
- ETAP (Power System Simulation)
- SCADA Systems
- Azure & GitHub Integration

STANDARDS

- MIL-STD-11991B (Electronic Parts)
- IPC Class 3 (High Reliability)
- SABS 0142 (Wiring Code)

PROJECT	PROJECT: TECHNICAL SLIDES		
SCALE: NTS	TITLE:		
DATE: OCT 26, 2024	DRAWN BY: AI	DWG NO.: 004	A

NotebookLM

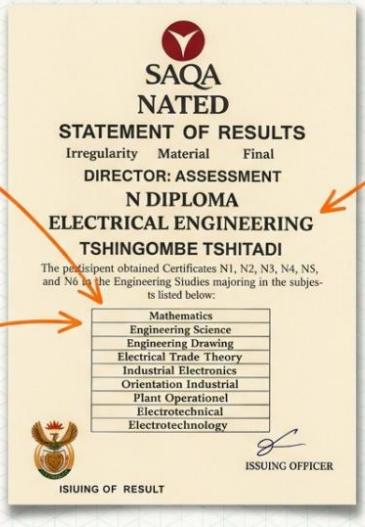
ASSESSMENT STRATEGY: BEYOND ROTE MEMORIZATION

THEORY

Testing Kirchhoff's Laws and Boolean Algebra
(A · B + A · B_bar = A)

SYSTEMIC AWARENESS

The curriculum uniquely tests 'Systemic Challenges'—evaluating the ability to handle exam irregularities and certification backlogs as engineering constraints.



SAQA
NATED
STATEMENT OF RESULTS
Irregularity Material Final
DIRECTOR: ASSESSMENT
N DIPLOMA
ELECTRICAL ENGINEERING
TSHINGOMBE TSHITADI
The participant obtained Certificates N1, N2, N3, N4, NS, and N6 in the Engineering Studies majoring in the subjects listed below:

Mathematics
Engineering Science
Engineering Drawing
Electrical Trade Theory
Industrial Electronics
Orientation Industrial
Plant Operationel
Electrotechnical
Electrotechnology

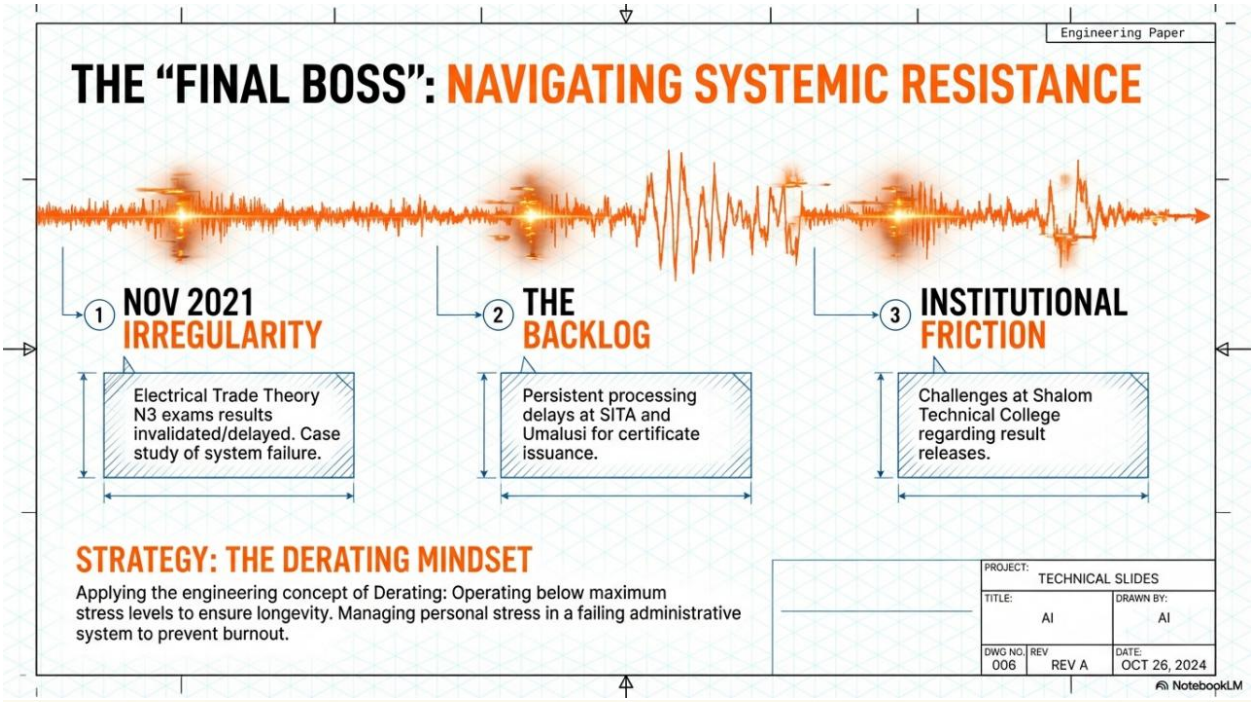
ISSUING OFFICER
ISIUING OF RESULT

PRACTICAL

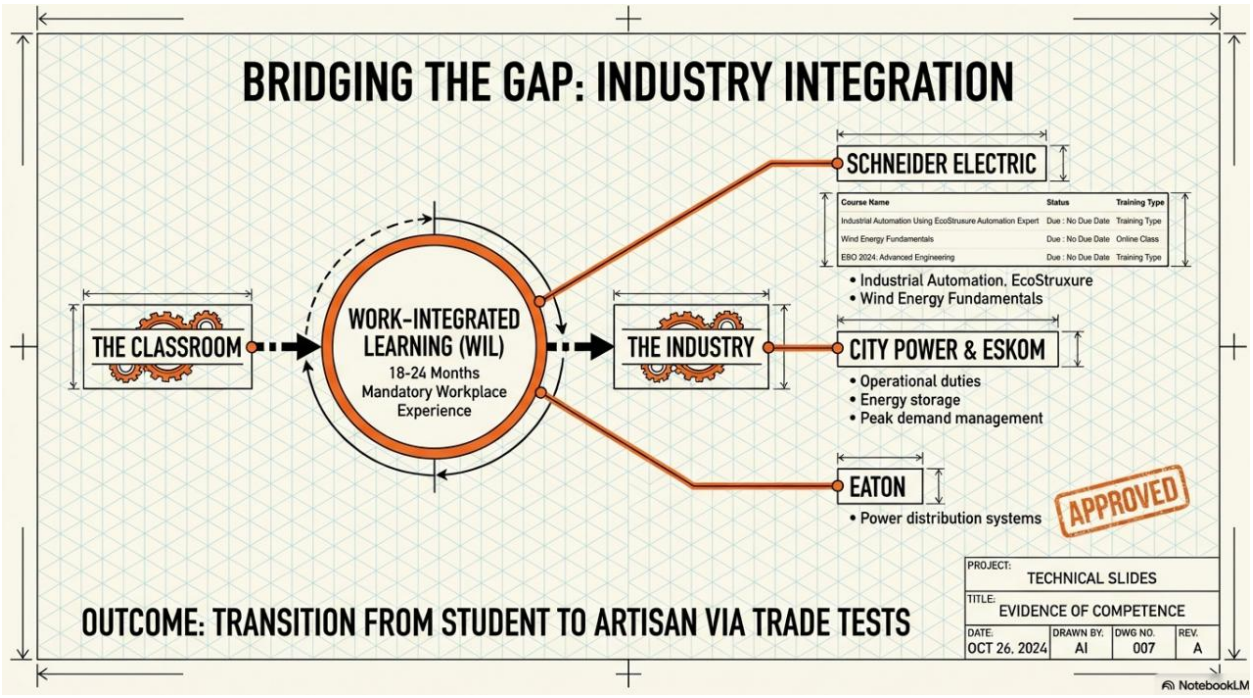
Wiring control panels, fault-finding, and soldering.

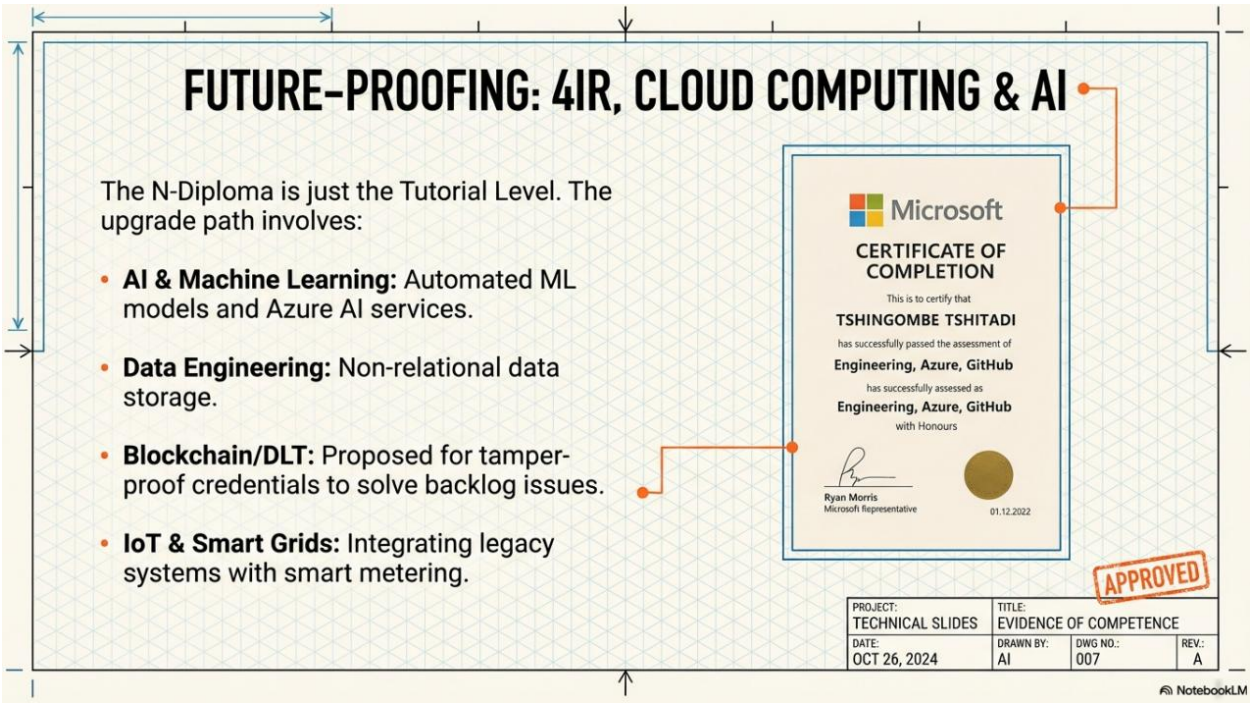
PROJECT: TECHNICAL SLIDES		SCALE: NTS
TITLE:		
DATE: OCT 26, 2024	DRAWN BY: AI	DWG NO.: 005 A

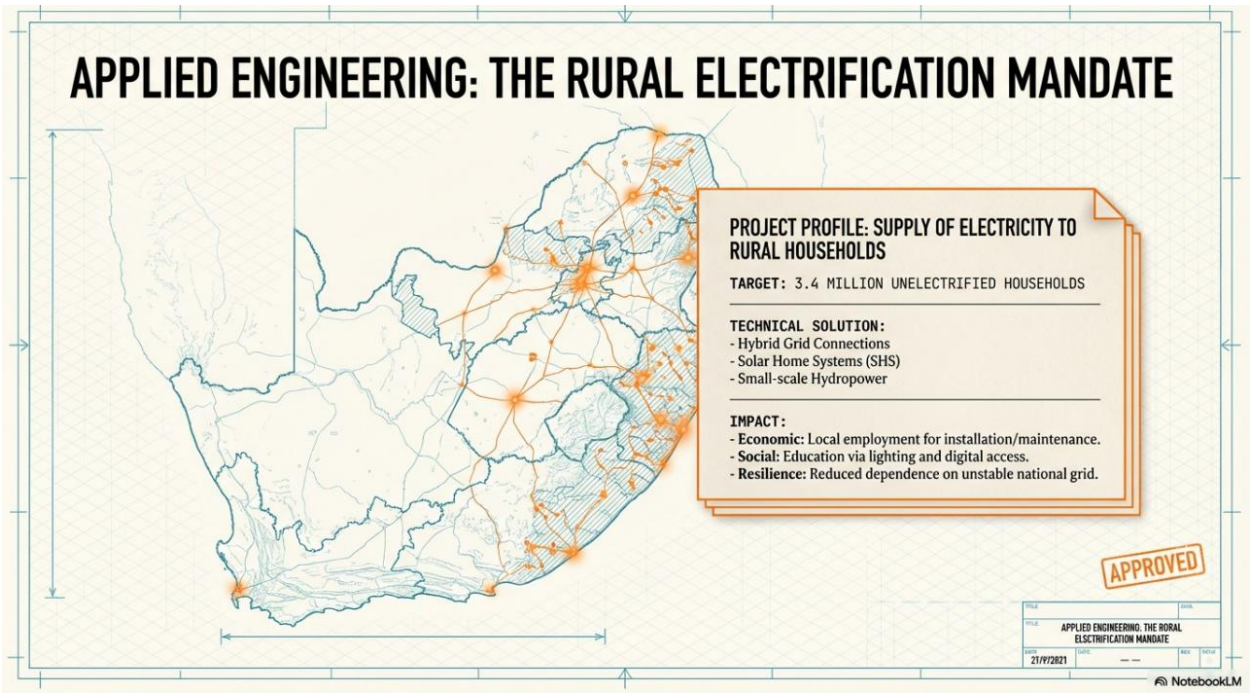
NotebookLM

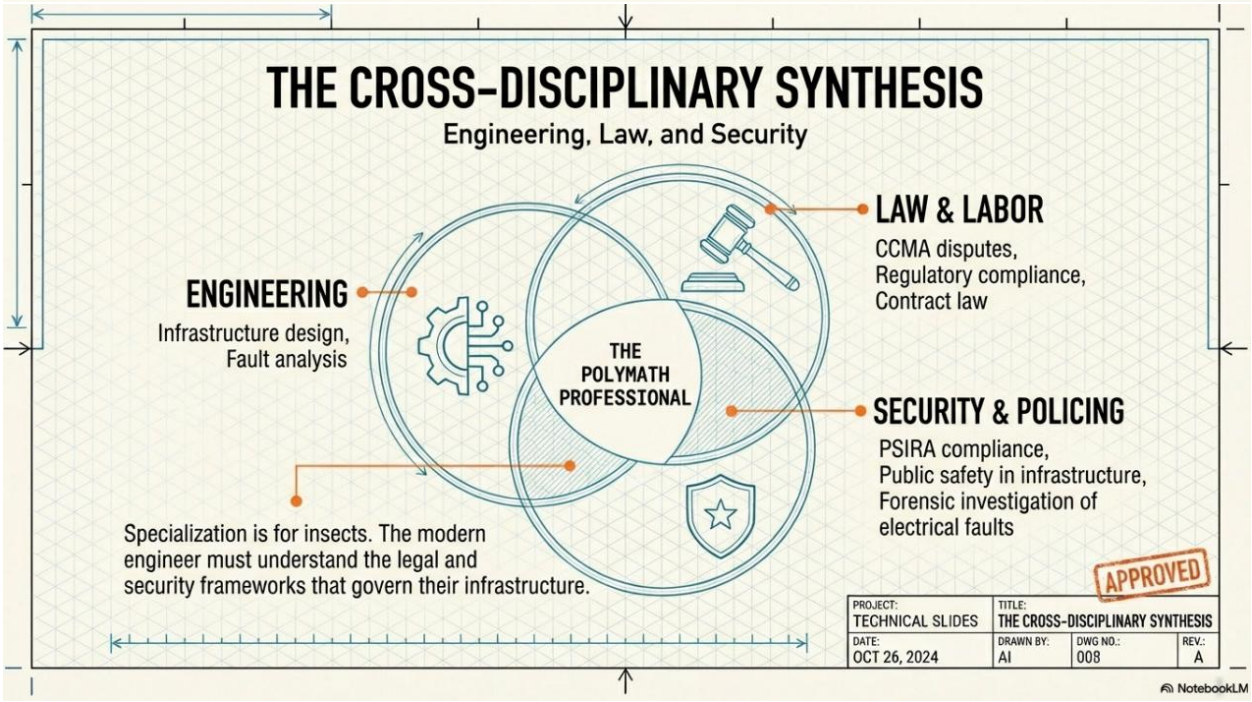

Engineering Paper
THE "FINAL BOSS": NAVIGATING SYSTEMIC RESISTANCE
1 NOV 2021 IRREGULARITY
Electrical Trade Theory N3 exams results invalidated/delayed. Case study of system failure.
2 THE BACKLOG
Persistent processing delays at SITA and Umalusi for certificate issuance.
3 INSTITUTIONAL FRICTION
Challenges at Shalom Technical College regarding result releases.
STRATEGY: THE DERATING MINDSET
Applying the engineering concept of Derating: Operating below maximum stress levels to ensure longevity. Managing personal stress in a failing administrative system to prevent burnout.
PROJECT: TECHNICAL SLIDES
TITLE: AI
DRAWN BY: AI
DWG NO. 006
REV A
DATE: OCT 26, 2024
NotebookLM

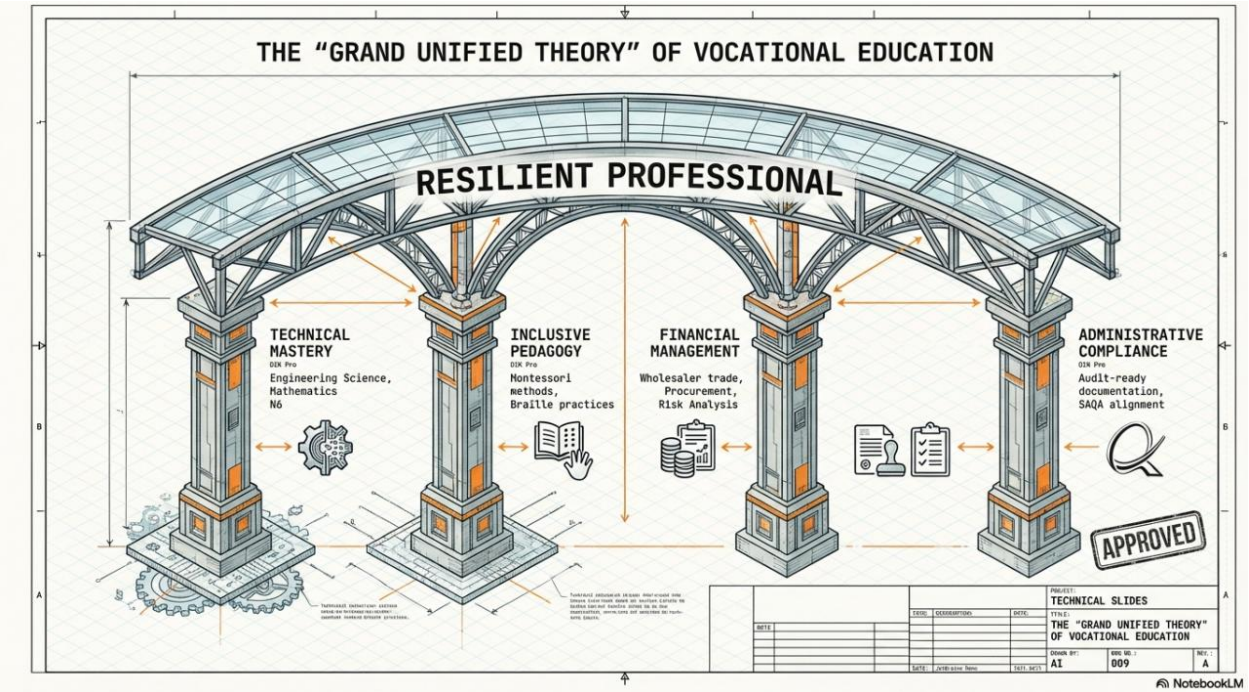
EVIDENCE OF COMPETENCE: THE UNASSAILABLE PORTFOLIO
Audit-Ready Documentation: The bridge between competence and recognition.
ST. PEACE COLLEGE
This is to certify that
TSHINGOMBE TSHITADI
having successfully completed the requirements by the General Academic Council for the degree of
Doctor of Electrical Engineering
with Honours
QCTO
SEIFSA TRAINING CENTRE
QUOR RECTIFICATE TESTE GRADE
ENGINEERING TRADES MAN CERTIFICATE
This is to certify that
Tshingombe Tshitad
Occupation
Engineering Fabrication
Registrar
ETDP SETA
ASSESSOR MODERATOR
THIS IS TO CERTIFY THAT
Tshingombe Tshitadi
ENGINEERING
merSETA
SETA
This is to certify that
Tshingombe Tshitadi
has achieved Reg. No.: 123854 as an Assessor and Moderator in the field of:
ENGINEERING
Hans Dambreville
APPROVED
PROJECT: TECHNICAL SLIDES
TITLE: EVIDENCE OF COMPETENCE
DATE: OCT 26, 2024
DRAWN BY: AI
DWG NO. 007
REV. A
NotebookLM

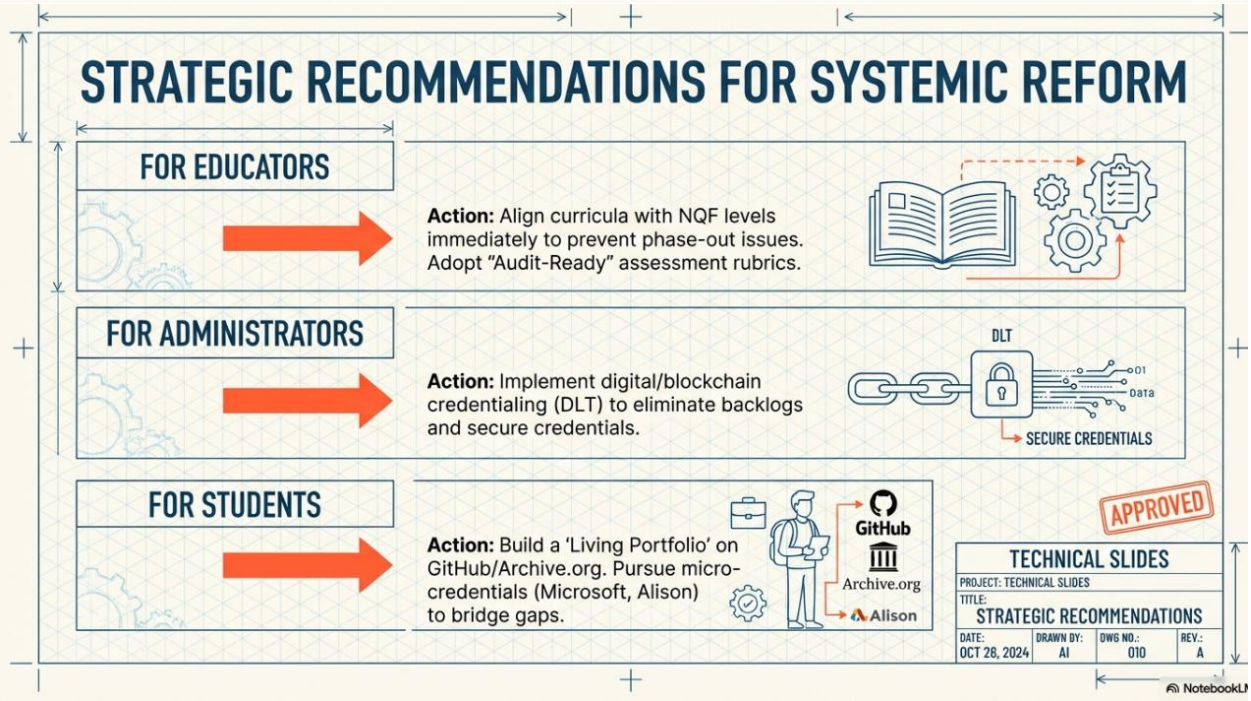

BRIDGING THE GAP: INDUSTRY INTEGRATION
THE CLASSROOM
WORK-INTEGRATED LEARNING (WIL)
18-24 Months
Mandatory Workplace Experience
THE INDUSTRY
SCHNEIDER ELECTRIC
Course Name | Status | Training Type
Industrial Automation Using EcoStruxure Automation Expert | Due : No Due Date | Training Type
Wind Energy Fundamentals | Due : No Due Date | Online Class
EBO 2024: Advanced Engineering | Due : No Due Date | Training Type
• Industrial Automation, EcoStruxure
• Wind Energy Fundamentals
CITY POWER & ESKOM
• Operational duties
• Energy storage
• Peak demand management
EATON
• Power distribution systems
APPROVED
OUTCOME: TRANSITION FROM STUDENT TO ARTISAN VIA TRADE TESTS
PROJECT: TECHNICAL SLIDES
TITLE: EVIDENCE OF COMPETENCE
DATE: OCT 26, 2024
DRAWN BY: AI
DWG NO. 007
REV. A
NotebookLM


FUTURE-PROOFING: 4IR, CLOUD COMPUTING & AI
The N-Diploma is just the Tutorial Level. The upgrade path involves:
• AI & Machine Learning: Automated ML models and Azure AI services.
• Data Engineering: Non-relational data storage.
• Blockchain/DLT: Proposed for tamper-proof credentials to solve backlog issues.
• IoT & Smart Grids: Integrating legacy systems with smart metering.
Microsoft
CERTIFICATE OF COMPLETION
This is to certify that
TSHINGOMBE TSHITADI
has successfully passed the assessment of
Engineering, Azure, GitHub
has successfully assessed as
Engineering, Azure, GitHub
with Honours
Ryan Morris
Microsoft Representative
01.12.2022
APPROVED
PROJECT: TECHNICAL SLIDES
TITLE: EVIDENCE OF COMPETENCE
DATE: OCT 26, 2024
DRAWN BY: AI
DWG NO.: 007
REV.: A
NotebookLM


APPLIED ENGINEERING: THE RURAL ELECTRIFICATION MANDATE
PROJECT PROFILE: SUPPLY OF ELECTRICITY TO RURAL HOUSEHOLDS
TARGET: 3.4 MILLION UNELECTRIFIED HOUSEHOLDS
TECHNICAL SOLUTION:
- Hybrid Grid Connections
- Solar Home Systems (SHS)
- Small-scale Hydropower
IMPACT:
- Economic: Local employment for installation/maintenance.
- Social: Education via lighting and digital access.
- Resilience: Reduced dependence on unstable national grid.
APPROVED
APPLIED ENGINEERING: THE RURAL ELECTRIFICATION MANDATE
27/9/2021
NotebookLM


THE CROSS-DISCIPLINARY SYNTHESIS
Engineering, Law, and Security
ENGINEERING
Infrastructure design,
Fault analysis
LAW & LABOR
CCMA disputes,
Regulatory compliance,
Contract law
THE POLYMATH PROFESSIONAL
SECURITY & POLICING
PSIRA compliance,
Public safety in infrastructure,
Forensic investigation of electrical faults
Specialization is for insects. The modern engineer must understand the legal and security frameworks that govern their infrastructure.
APPROVED
PROJECT: TECHNICAL SLIDES
TITLE: THE CROSS-DISCIPLINARY SYNTHESIS
DATE: OCT 26, 2024
DRAWN BY: AI
DWG NO.: 008
REV.: A
NotebookLM

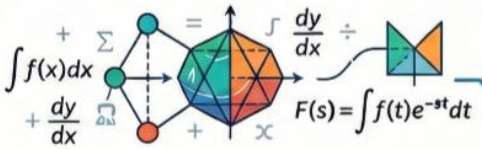

THE "GRAND UNIFIED THEORY" OF VOCATIONAL EDUCATION
RESILIENT PROFESSIONAL
TECHNICAL MASTERY
DIK Pro
Engineering Science, Mathematics N6
INCLUSIVE PEDAGOGY
DIK Pro
Montessori methods, Braille practices
FINANCIAL MANAGEMENT
Wholesaler trade, Procurement, Risk Analysis
ADMINISTRATIVE COMPLIANCE
DIK Pro
Audit-ready documentation, SAQA alignment
APPROVED
PROJECT: TECHNICAL SLIDES
TITLE: THE "GRAND UNIFIED THEORY" OF VOCATIONAL EDUCATION
DRAWN BY: AI
DWG NO.: 009
REV.: A
NotebookLM


STRATEGIC RECOMMENDATIONS FOR SYSTEMIC REFORM
FOR EDUCATORS
Action: Align curricula with NQF levels immediately to prevent phase-out issues. Adopt "Audit-Ready" assessment rubrics.
FOR ADMINISTRATORS
Action: Implement digital/blockchain credentialing (DLT) to eliminate backlogs and secure credentials.
DLT
01
Data
SECURE CREDENTIALS
FOR STUDENTS
Action: Build a 'Living Portfolio' on GitHub/Archive.org. Pursue micro-credentials (Microsoft, Alison) to bridge gaps.
GitHub
Archive.org
Alison
APPROVED
TECHNICAL SLIDES
PROJECT: TECHNICAL SLIDES
TITLE: STRATEGIC RECOMMENDATIONS
DATE: OCT 28, 2024
DRAWN BY: AI
DWG NO.: 010
REV.: A
NotebookLM

RESILIENCE IS THE ULTIMATE QUALIFICATION
VERIFIED GRADE
AUDIT CLEARANCE
CREDENTIAL VALIDATED
PASS
TRADE TEST CERTIFICATE - ELECTRICIAN
"Your career narrative is written in every lab experiment, every certificate earned, every bureaucratic battle fought, and every project delivered."
DISTRIBUTION NETWORK
TRANSFORMER STATION
RENEWABLE INTEGRATION
COMMUNITY POWER SUPPLY
DISTRIBUTION NETWORK
COMMUNITY POWER SUPPLY
STANDARDIZE. INTEGRATE. PERSIST.
The Portfolio is Alive.
TECHNICAL SLIDES
PROJECT NAME
Project Name
DATE
31/01/2021
REVISION
1
NotebookLM

The Dual Challenge: Engineering Excellence vs. Bureaucratic Hurdles

THE PATH OF TECHNICAL MASTERY



Advanced Theoretical Knowledge is Essential

Mastery of calculus, differential equations, and transforms is required for modern engineering.

Cross-Disciplinary Skills are Mandatory

Expertiee must span core EE, IT (Azure, GitHub), and industry-specific platforms (Schneider EcoStruxure).

Adherence to Global Standards is Critical

Professionals must comply with strict international standards like MIL-STD and IPC for high-reliability systems.

THE CORE CONFLICT

Success Requires Dual Competency

Professionals need both elite technical skill and the resilience to navigate bureaucratic chaos.

THE MAZE OF ADMINISTRATIVE STRUGGLE

Systemic Certification Delays

Professionals face significant backlogs and pending statuses in the issuance of diplomas and certificates.

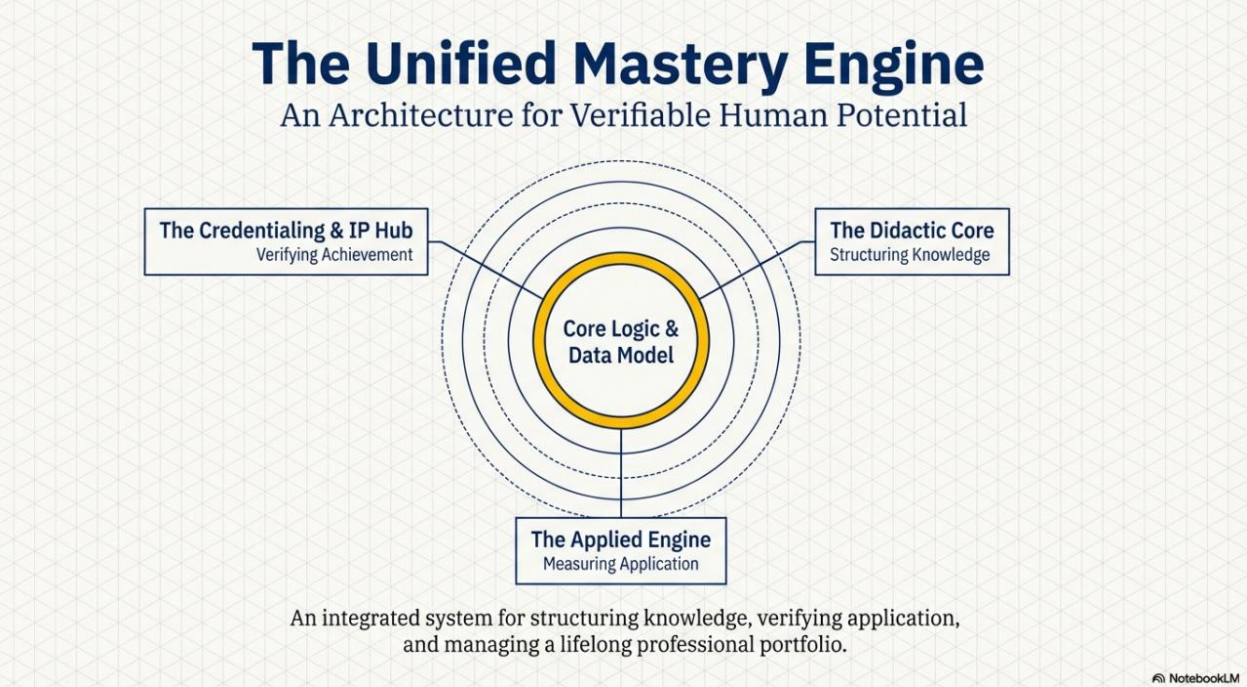
Widespread Examination Irregularities

Results can be invalidated by regulatory bodies, blocking career and academic progression.

Navigating Multiple, Complex Frameworks

Compliance is required across various bodies like SAQA, DHET, QCTO, and multiple SETAs.

NotebookLM


The Unified Mastery Engine
An Architecture for Verifiable Human Potential
The Credentialing & IP Hub
Verifying Achievement
The Didactic Core
Structuring Knowledge
Core Logic & Data Model
The Applied Engine
Measuring Application
An integrated system for structuring knowledge, verifying application, and managing a lifelong professional portfolio.
NotebookLM

Integrating the Fragmented Professional Landscape
The current professional ecosystem is disconnected. We bridge the gaps between disparate platforms—from Microsoft Learn and Azure DevOps to GitHub and Trailhead—creating a single, coherent narrative of expertise.
Rewards
Personalized learning plans
Azure DevOps
CI/CD pipelines
Unified Engine
Microsoft Learn
Verified learning paths
GitHub
Engineering and AI development
NotebookLM

The User Persona: Tshingombe Tshitadi

A multi-disciplinary professional bridging public service integrity with technical vocational mastery.

Metropolitan Police Application Form
USER PROFILE: METROPOLITAN POLICE INTEGRATION

Applicant Name: [Tshingombe Tshitadi]
Current Band/Rank: [Detective Inspector]
Employee number: [23456788]

Institution: [St Peace College / DHET]
Current Pursuit: [National Diploma Certificate & SAQA Permit Award]
Context: [Vocational student integrating Police School Integrity with Engineering School Business Study.]

NotebookLM

Three Pillars of Audit-Grade Mastery

IBM Plex Sans
Pillar 1: The Didactic Core

IBM Plex Serif
How knowledge is structured and acquired through a library of modular, cross-disciplinary curricula.

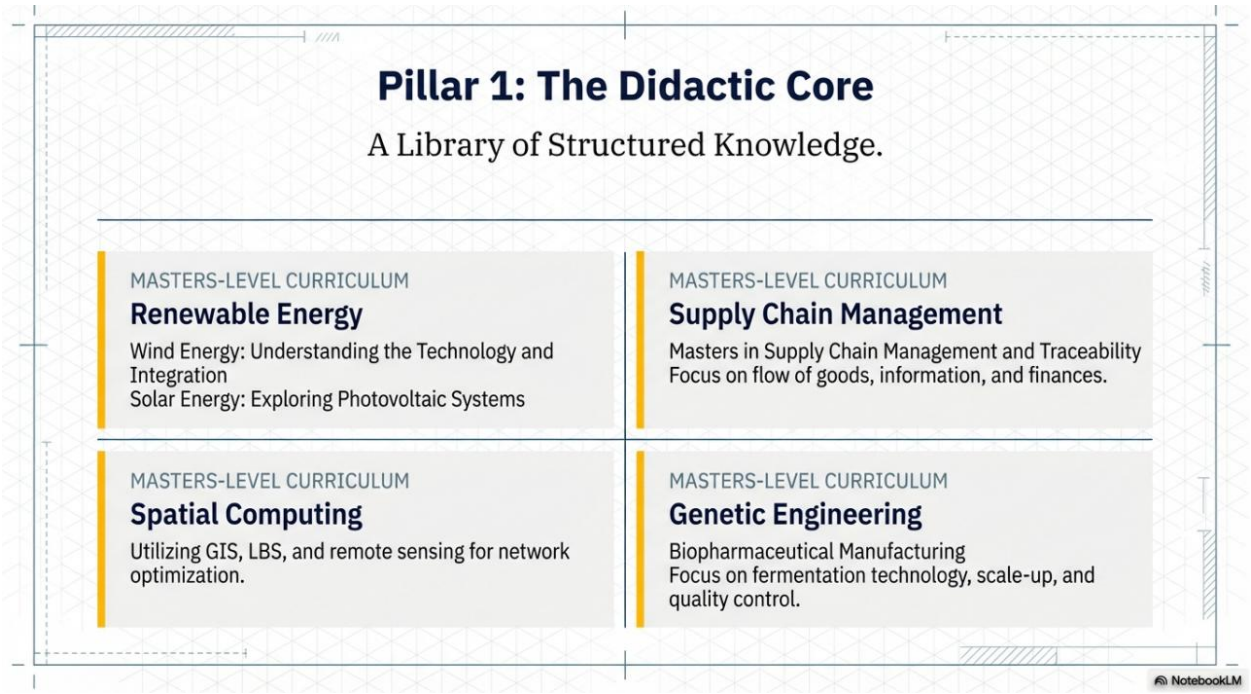
IBM Plex Sans
Pillar 2: The Applied Engine

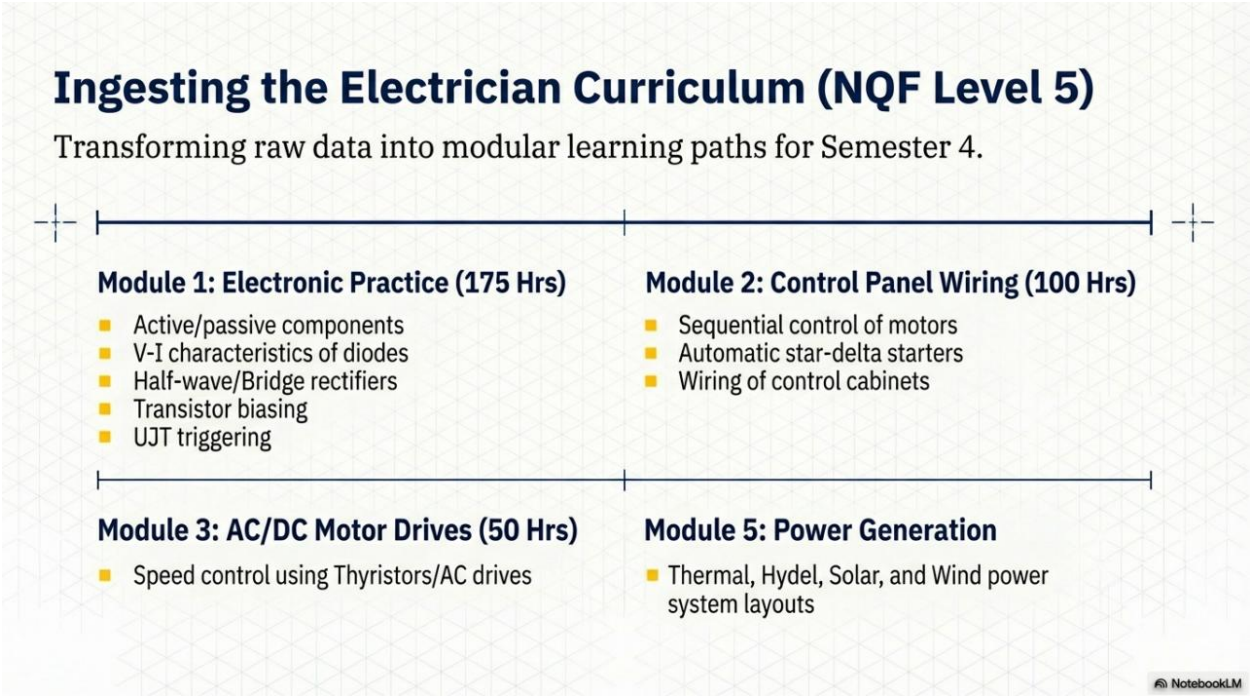
IBM Plex Serif
How knowledge is applied and measured through project-based work, simulations, and quantitative analysis.

IBM Plex Sans
Pillar 3: The Credentialing & IP Hub

IBM Plex Serif
How achievement is verified through national frameworks, blockchain certificates, and a structured patent lifecycle.

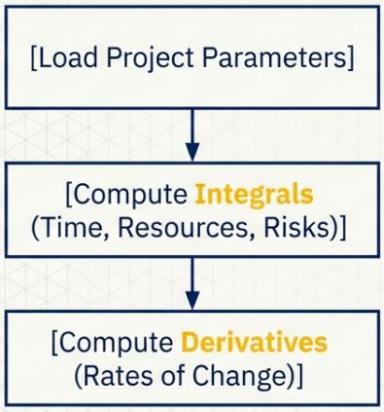
NotebookLM


Pillar 1: The Didactic Core
A Library of Structured Knowledge.
MASTERS-LEVEL CURRICULUM
Renewable Energy
Wind Energy: Understanding the Technology and Integration
Solar Energy: Exploring Photovoltaic Systems
MASTERS-LEVEL CURRICULUM
Supply Chain Management
Masters in Supply Chain Management and Traceability
Focus on flow of goods, information, and finances.
MASTERS-LEVEL CURRICULUM
Spatial Computing
Utilizing GIS, LBS, and remote sensing for network optimization.
MASTERS-LEVEL CURRICULUM
Genetic Engineering
Biopharmaceutical Manufacturing
Focus on fermentation technology, scale-up, and quality control.
NotebookLM


Ingesting the Electrician Curriculum (NQF Level 5)
Transforming raw data into modular learning paths for Semester 4.
Module 1: Electronic Practice (175 Hrs)
Active/passive components
V-I characteristics of diodes
Half-wave/Bridge rectifiers
Transistor biasing
UJT triggering
Module 2: Control Panel Wiring (100 Hrs)
Sequential control of motors
Automatic star-delta starters
Wiring of control cabinets
Module 3: AC/DC Motor Drives (50 Hrs)
Speed control using Thyristors/AC drives
Module 5: Power Generation
Thermal, Hydel, Solar, and Wind power system layouts
NotebookLM

Pillar 2: The Applied Engine

Translating didactic learning into measurable project outcomes.



Project Planning

Total Time: $T = \int_0^N t_i \, di$

Resource Management

Total Consumption: $R = \int_0^T r(t) \, dt$

Cost Projection

Total Cost:
$C_{total} = \sum(M_{material} + H_{human} + S_{stationery} + B_{building})$

NotebookLM

Verifiable Logic: The Engine's Source Code

Mathematical Model

$$E = \int_0^T \frac{1}{2}\rho A v^3 \eta) dt$$

ρ = Air Density
η = Efficiency

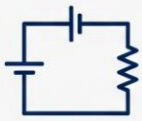
VBA Implementation

```
' Renewable Energy: Wind Harvest
Function WindEnergyHarvest(rho, A, v,
v, eta, duration) As Double
    WindEnergyHarvest = 0.5 * rho * A
* (v ^ 3) * eta * duration
End Function
```

NotebookLM

Bridging Didactics and Practice

Integration with UniTrain-I and InsTrain simulation environments.



DC Technology

AC Technology

Three-Phase Technology

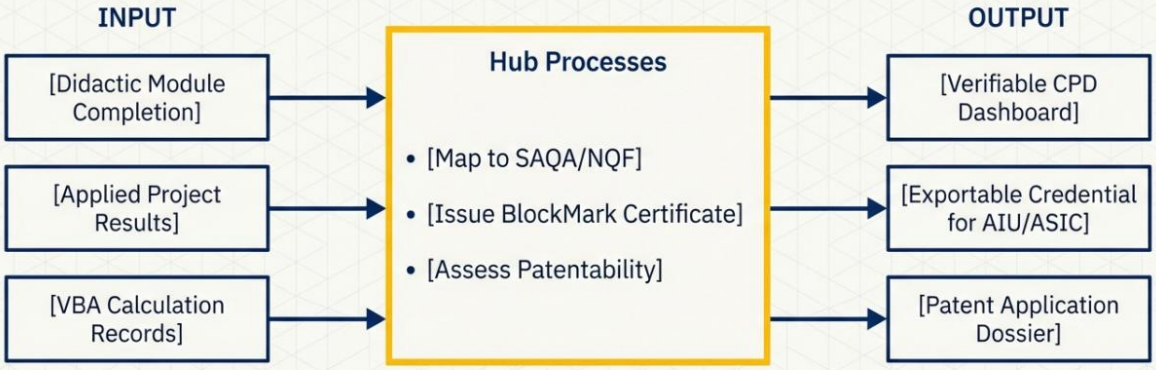
KNX Building Automation

Module: UniTrainICredentialTracker

```
Type UniTrainTrainee
    Name As String
    CourseCode As String
    DC_Module As Boolean
    AC_Module As Boolean
    ThreePhase_Module As Boolean
    FaultsResolved As Integer
    TotalFaults As Integer
    CertificationStatus As String
End Type
```

NotebookLM

Pillar 3: The Credentialing & IP Hub



NotebookLM

Mapping to National Stanlards (SAQA)

Aligning curriculum with SAQA ID 63790: National Certificate: Electrical Engineering

Component	Unit Standard ID	Title	Credits
Core	258963	Install, test and maintain electrical equipment in a hazardous location	10
Core	113924	Install and commission DC and AC machines and control gear	10
Fundamental	119472	Accommodate audience and context needs in oral/signed communication	5
Elective	259097	Carry out a detailed inspection and repair defects on explosion prevention apparatus	6

NotebookLM

International Interoperability

The French Brevet de Technicien Supérieur (BTS) in Electrotechnics

Professional Activities

- Étude - Conception préliminaire (Preliminary study & design)
- Conception - étude détaillée du projet (Detailed project design)
- Analyse – diagnostic (Analysis – diagnostic)
- Maintenance d'une installation électrique (Maintenance of an electrical installation)

Certified Competencies

- Modéliser le comportement de tout ou partie d'un ouvrage (Model system behavior)
- Dimensionner les constituants (Dimension components)
- Proposer l'architecture d'un ouvrage (Propose system architecture)
- Gérer et conduire le projet/chantier (Manage the project)

NotebookLM

From Research to Asset: The IP Lifecycle

Creating an audit-ready trail for patent applications.

Patentability Criteria

1. **Novelty:** Not publicly disclosed before filing.
2. **Utility:** Must function and serve a useful purpose.
3. **Inventive Step:** Not obvious to a skilled professional in the field.

Reference: `URFIST Paris` patent tutorials and `Espacenet` database for prior art searches.

VBA Logic for Patent Tracking

```
' Module: Research and Patent Lifecycle Tracker
Type ResearchPatentProject
    ProjectID As String
    ScopeDefined As Boolean
    MethodologySet As Boolean
    PatentNovelty As Boolean
    PatentUtility As Boolean
    PatentInventiveStep As Boolean
    PatentFiled As Boolean
End Type
```

NotebookLM

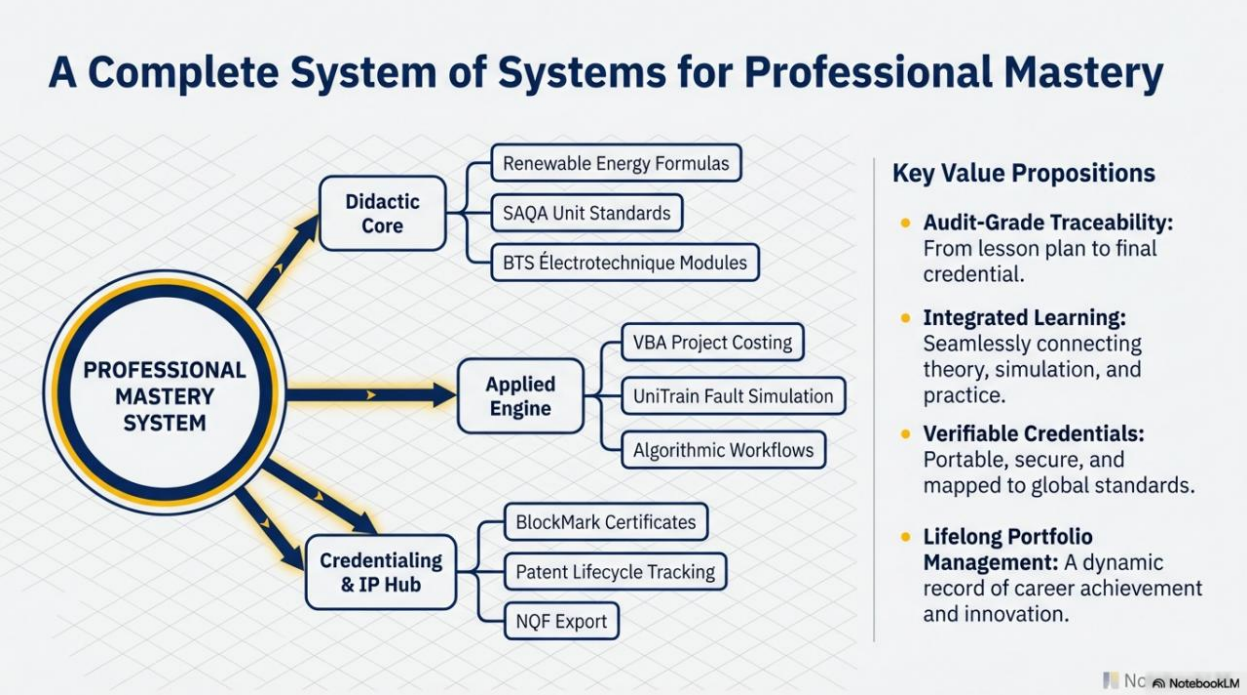
The Mechanics of Verification

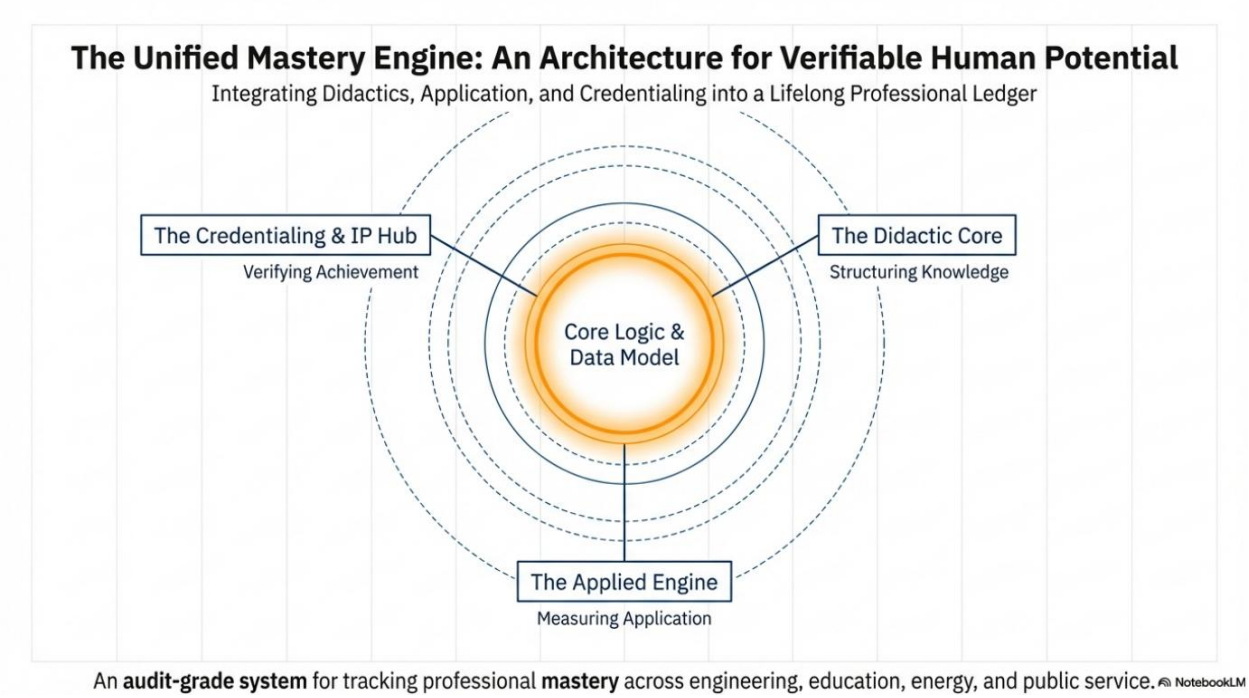
Blockchain-Ready Credentials via BlockMark.

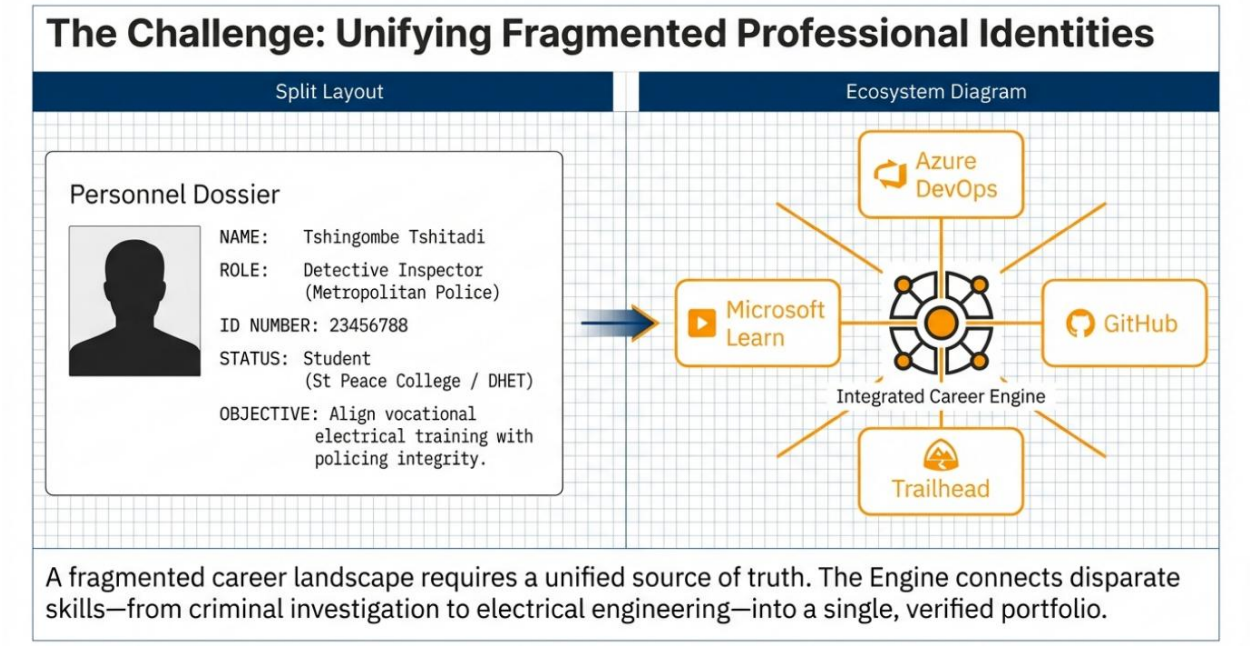
Item	Price (credits)	Paid for by
Issue a certificate with an expiry date	£1 (100) per year	Issuer
Issue a non-expiring certificate	£10 (1000)	Issuer
Issue a CPD folder with a certificate	£1 (100) per year	Issuer
Stamp a hash of an issued certificate on blockchain	£1 (100)*	Issuer

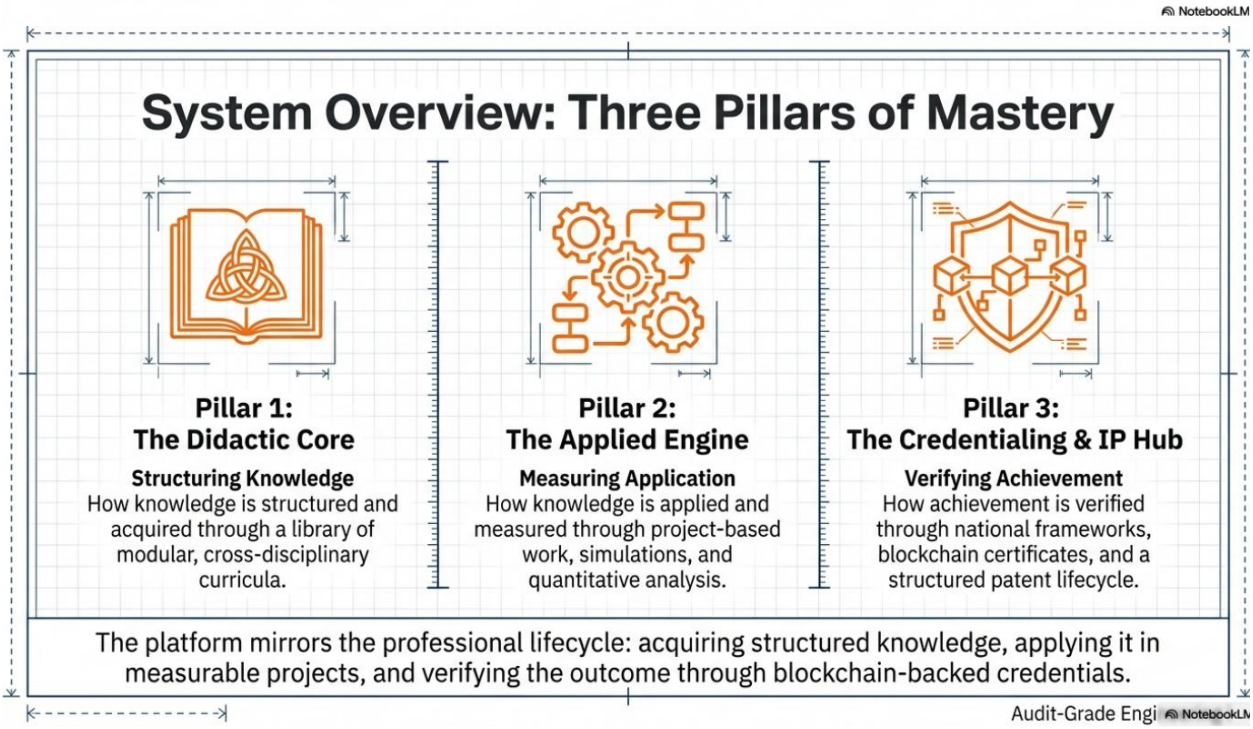
*Coming soon (currently beta-testing with no charge)

NotebookLM


A Complete System of Systems for Professional Mastery
PROFESSIONAL MASTERY SYSTEM
Didactic Core
Renewable Energy Formulas
SAQA Unit Standards
BTS Électrotechnique Modules
Applied Engine
VBA Project Costing
UniTrain Fault Simulation
Algorithmic Workflows
Credentialing & IP Hub
BlockMark Certificates
Patent Lifecycle Tracking
NQF Export
Key Value Propositions
Audit-Grade Traceability: From lesson plan to final credential.
Integrated Learning: Seamlessly connecting theory, simulation, and practice.
Verifiable Credentials: Portable, secure, and mapped to global standards.
Lifelong Portfolio Management: A dynamic record of career achievement and innovation.
NotebookLM


The Unified Mastery Engine: An Architecture for Verifiable Human Potential
Integrating Didactics, Application, and Credentialing into a Lifelong Professional Ledger
The Credentialing & IP Hub
Verifying Achievement
The Didactic Core
Structuring Knowledge
Core Logic & Data Model
The Applied Engine
Measuring Application
An audit-grade system for tracking professional mastery across engineering, education, energy, and public service.
NotebookLM


The Challenge: Unifying Fragmented Professional Identities
Split Layout
Ecosystem Diagram
Personnel Dossier
NAME: Tshingombe Tshitadi
ROLE: Detective Inspector (Metropolitan Police)
ID NUMBER: 23456788
STATUS: Student (St Peace College / DHET)
OBJECTIVE: Align vocational electrical training with policing integrity.
Azure DevOps
Microsoft Learn
GitHub
Integrated Career Engine
Trailhead
A fragmented career landscape requires a unified source of truth. The Engine connects disparate skills—from criminal investigation to electrical engineering—into a single, verified portfolio.


NotebookLM
System Overview: Three Pillars of Mastery
Pillar 1: The Didactic Core
Structuring Knowledge
How knowledge is structured and acquired through a library of modular, cross-disciplinary curricula.
Pillar 2: The Applied Engine
Measuring Application
How knowledge is applied and measured through project-based work, simulations, and quantitative analysis.
Pillar 3: The Credentialing & IP Hub
Verifying Achievement
How achievement is verified through national frameworks, blockchain certificates, and a structured patent lifecycle.
The platform mirrors the professional lifecycle: acquiring structured knowledge, applying it in measurable projects, and verifying the outcome through blockchain-backed credentials.
Audit-Grade Engi
NotebookLM

Pillar 1: The Didactic Core — Structuring Knowledge

A comprehensive library of modules mapping directly to professional competencies.

Renewable Energy

Wind Energy: Understanding the Technology and Integration
Solar Energy: Exploring Photovoltaic Systems

Supply Chain Management

Masters in Supply Chain Management and Traceability
Focus on flow of goods, information, and finances from origin to consumer.

Spatial Computing

Spatial Computing in Telecommunications
Utilizing GIS, LBS, and remote sensing for network optimization.

Genetic Engineering

Biopharmaceutical Manufacturing
Focus on fermentation technology, scale-up, and quality control.

Moving beyond static textbooks, the Core structures cross-disciplinary knowledge into trackable units.

Audit-Grade Engi NotebookLM

The Core in Practice: Digitizing the Electrical Syllabus

Transforming raw curriculum hours into tracked didactic units.

Module Name & Number	Exercises	Total Hrs & Progress
Module 1: Electronic Practice	15 Exercises	175 Hrs
Module 2: Control Panel Wiring	5 Exercises	100 Hrs 100 Hrs
Module 3: AC/DC Motor Drives	3 Exercises	50 Hrs 50 Hrs
Module 5: Power Generation & Substation	7 Exercises	50 Hrs 50 Hrs
Module 6: Transmission and Distribution	-	50 Hrs 50 Hrs

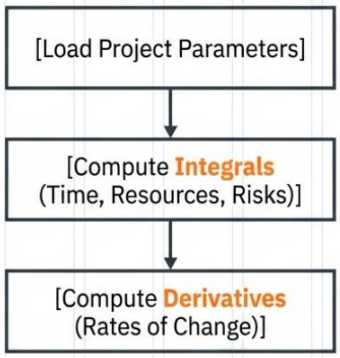
Source Data: NIMI Electrical Trade Practical - Electrician 4th Semester

The Engine digests the specific hourly requirements of the National Instructional Media Institute (NIMI) syllabus, creating a digital twin of the student's classroom progress.

Audit-Grade Engi NotebookLM

Pillar 2: The Applied Engine — From Theory to Logic

Translating didactic learning into measurable, mathematical outcomes.



Project Planning

Total Time: $T = \int_0^N t_i \, di$

Resource Management

Total Consumption: $R = \int_0^T r(t)dt$

Cost Projection

Total Cost: $C_{\text{total}} = \sum (M_{\text{material}} + H_{\text{human}} + S_{\text{stationery}} + B_{\text{building}})$

Knowledge is useless without measurable application. The Applied Engine provides the tools to plan, cost, and execute projects using robust mathematical models.

Audit-Grade Engineering NotebookLM

The Engine in the Workshop: Tracking Practical Exercises

Every physical task is logged as a data point in the professional ledger.

Mapping Table

Exercise ID	Physical Task Description		Engine Digital Action
Trust Navy			
Ex 4.1.163	Construct half-wave, full wave and bridge rectifiers.		**Track Component Efficiency & Output Waveform**
Ex 4.2.175 (iii)	Design layout of control cabinet for automatic star-delta starter.		Audit Wiring Layout & Safety Compliance
Ex 4.3.180	Perform speed control of DC motor using thyristors.		Measure RPM vs. Voltage Inputs

Tasks derived from St Peace College / DHET assessment requirements.

Audit-Grade Engi NotebookLM

Built on Audit-Grade Mathematics and Code

Theoretical Model

Power Output:

$$P_{\text{total}} = \int_0^T P(t)\,dt$$

Energy Harvested:

$$E = \int_0^T 0.5 * \text{rho} * A * v^3 * \text{eta}\,dt$$

rho = Air Density
eta = Efficiency

Implementation (VBA)

```
Function WindEnergyHarvest(rho, A, v, eta, duration) As Double
    WindEnergyHarvest = 0.5 * rho * A * (v ^ 3) * eta * duration
End Function

Function EstimateTotalProjectCost(...)
    "Human Resource: " & FormatCurrency(entry.HumanResourceCost)


    ..

    ..

```

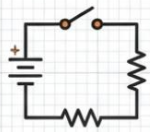
The system's backend is built on robust, auditable logic. Every project calculation—from renewable energy harvesting to cost estimation—is automated and verifiable.

Audit-Grade Engineering

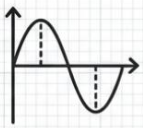
NotebookLM

Bridging Simulation and Reality

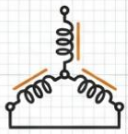
Seamless integration with hardware training platforms like UniTrain-I.



DC Technology



AC Technology



Three-Phase Tech

KNX Automation

```
Type UniTrainTrainee
    Name As String
    CourseCode As String
    FaultsResolved As Integer
    TotalFaults As Integer
    CertificationStatus As String
End Type
```

Engineering Orange

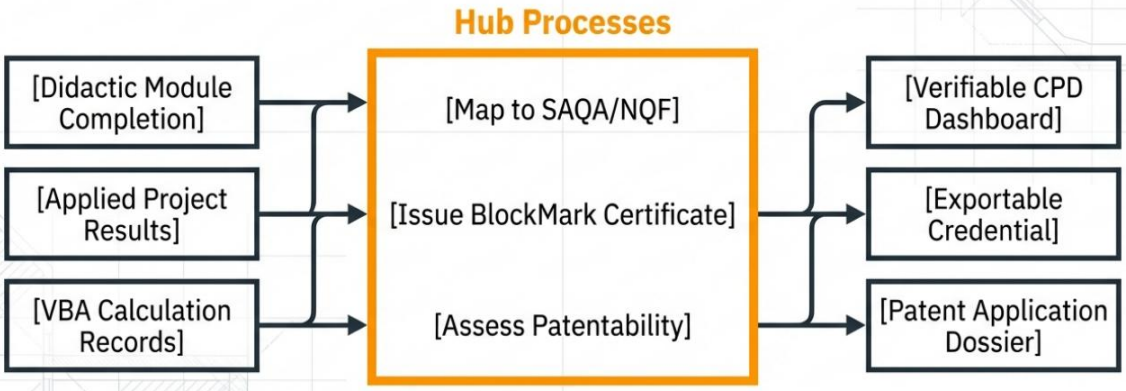
Real-time Verification: Linked to Exercise 4.1.170 (Troubleshoot defects in power supplies).

Audit-Grade Engineering

NotebookLM

Pillar 3: The Credentialing & IP Hub

A structured process for formalizing achievement and managing intellectual property.



Audit-Grade Engineering

NotebookLM

Compliance & Standards: Mapping to SAQA NQF Level 3

The platform's data model maps every syllabus exercise directly to specific unit standards.

Component	Unit Standard ID	Title	Credits
Core	258963	Install, test and maintain electrical equipment in a hazardous location	10
Core	113924	Install and commission DC and AC machines and control gear	10
Fundamental	119472	Accommodate audience and context needs in oral/signed communication	5

Audit-Grade Engineering | NotebookLM

NotebookLM

The Mechanics of Verification: Blockchain-Ready Credentials

Integrating with BlockMark Technologies for immutable proof of mastery

Trust Navy

BlockMark Certificate Issuance Price List (VAT Excl.)

	Item	Price (credits)	Paid for by
1	Issue a certificate with an expiry date	£1 (100) per year	Issuer
2	Issue a non-expiring certificate	£10 (1000)	Issuer
3	Stamp a hash of an issued certificate on blockchain	£1 (100)*	Issuer

*Supports beta-testing capabilities.

NotebookLM

From Student to Inventor: Automated IP Tracking

The system identifies innovation during the learning process using international patent standards.

Patentability Criteria

Novelty: Not publicly disclosed before filing.

Utility: Must function and serve a useful purpose.

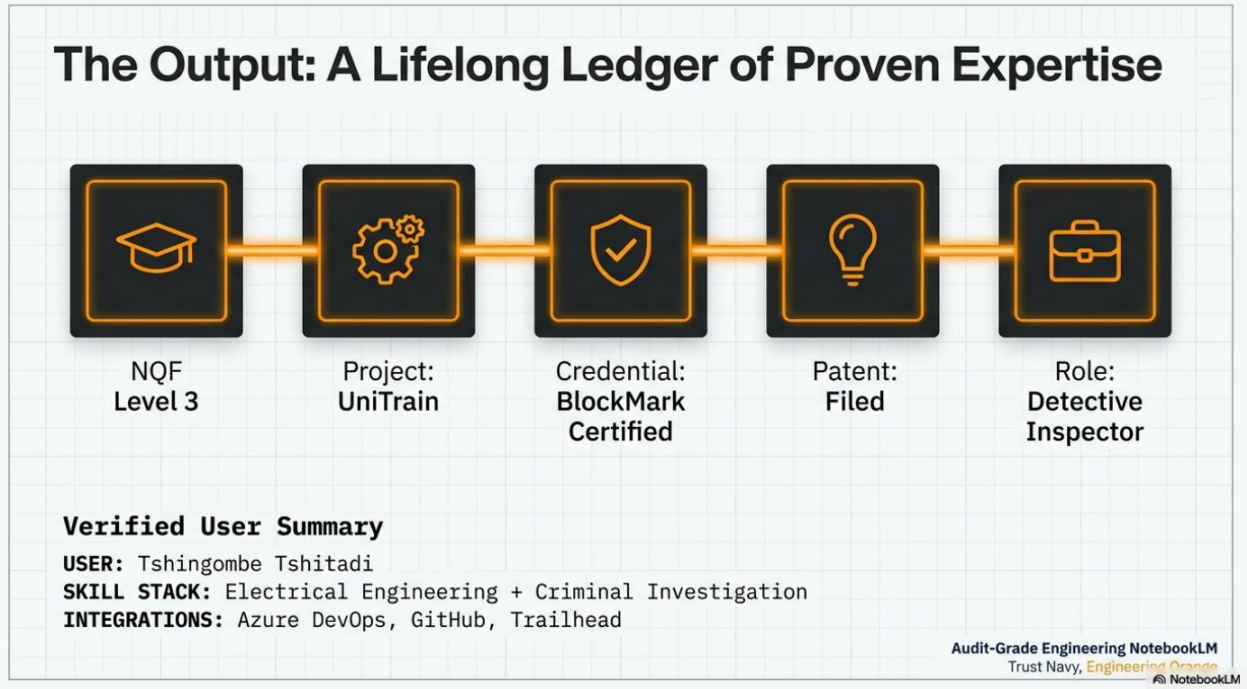
Inventive Step: Not obvious to a skilled professional in the field.

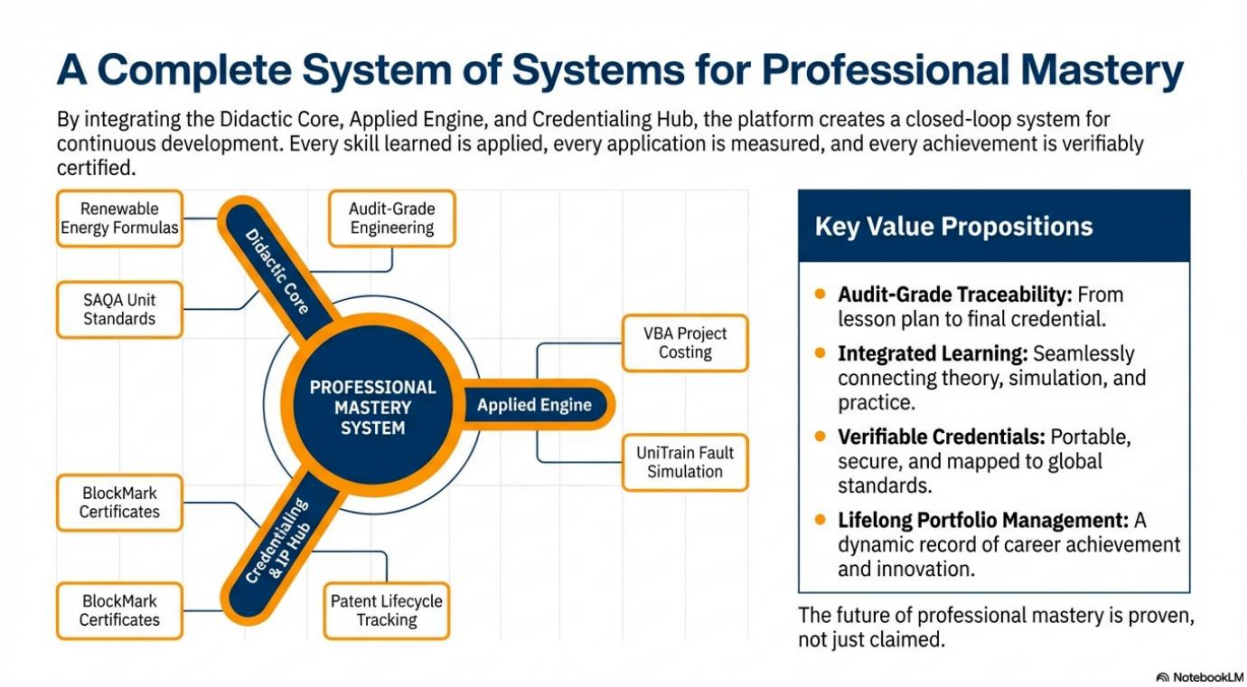
Reference: `URFIST Paris` patent tutorials and `Espacenet` database for prior art searches.

VBA Logic for Patent Tracking

```
Type ResearchPatentProject
    ProjectID As String
    PatentNovelty As Boolean
    PatentUtility As Boolean
    PatentInventiveStep As Boolean
    PatentFiled As Boolean
End Type
```

Audit-Grade Engineering


The Output: A Lifelong Ledger of Proven Expertise
NQF
Level 3
Project:
UniTrain
Credential:
BlockMark
Certified
Patent:
Filed
Role:
Detective
Inspector
Verified User Summary
USER: Tshingombe Tshitadi
SKILL STACK: Electrical Engineering + Criminal Investigation
INTEGRATIONS: Azure DevOps, GitHub, Trailhead
Audit-Grade Engineering NotebookLM
Trust Navy, Engineering Orange
NotebookLM


A Complete System of Systems for Professional Mastery
By integrating the Didactic Core, Applied Engine, and Credentialing Hub, the platform creates a closed-loop system for continuous development. Every skill learned is applied, every application is measured, and every achievement is verifiably certified.
Renewable Energy Formulas
Audit-Grade Engineering
Didactic Core
SAQA Unit Standards
VBA Project Costing
PROFESSIONAL MASTERY SYSTEM
Applied Engine
UniTrain Fault Simulation
BlockMark Certificates
Credentialing & IP Hub
BlockMark Certificates
Patent Lifecycle Tracking
Key Value Propositions
Audit-Grade Traceability: From lesson plan to final credential.
Integrated Learning: Seamlessly connecting theory, simulation, and practice.
Verifiable Credentials: Portable, secure, and mapped to global standards.
Lifelong Portfolio Management: A dynamic record of career achievement and innovation.
The future of professional mastery is proven, not just claimed.
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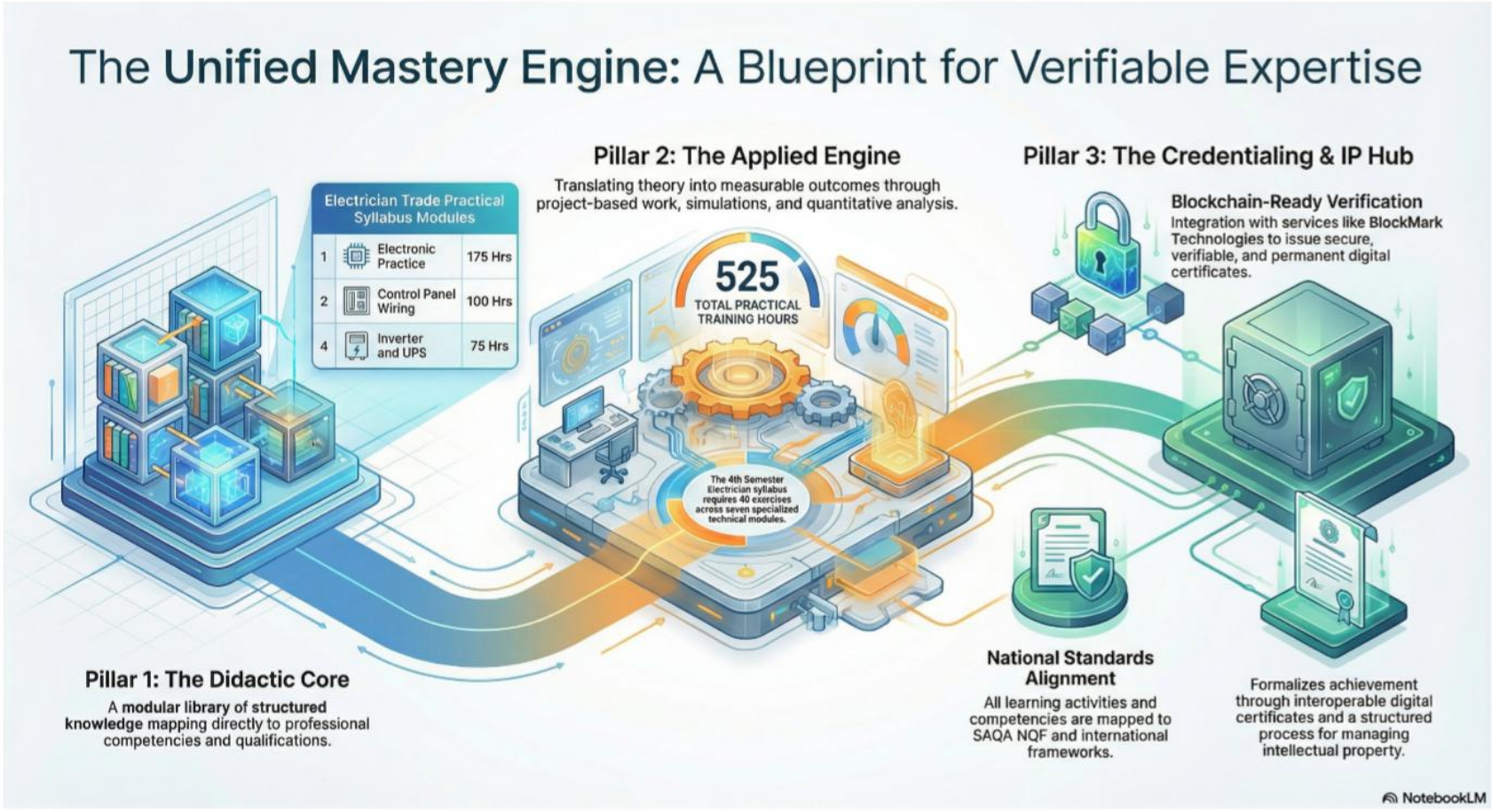
The **Unified Mastery Engine:** A Blueprint for Verifiable Expertise


Pillar 2: The Applied Engine
Translating theory into measurable outcomes through project-based work, simulations, and quantitative analysis.
Pillar 3: The Credentialing & IP Hub
Electrician Trade Practical Syllabus Modules
1 Electronic Practice 175 Hrs
2 Control Panel Wiring 100 Hrs
4 Inverter and UPS 75 Hrs
525
TOTAL PRACTICAL TRAINING HOURS
The 4th Semester Electrician syllabus requires 40 exercises across seven specialized technical modules.
Blockchain-Ready Verification
Integration with services like BlockMark Technologies to issue secure, verifiable, and permanent digital certificates.
Pillar 1: The Didactic Core
A modular library of structured knowledge mapping directly to professional competencies and qualifications.
National Standards Alignment
All learning activities and competencies are mapped to SAQA NQF and international frameworks.
Formalizes achievement through interoperable digital certificates and a structured process for managing intellectual property.
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The Unified Mastery Engine: An Architecture for Verifiable Human Potential

Pillar 1: The Didactic Core

A library of modular curricula covering advanced technical and management fields.

- **Electronic Practice** — 15 Exercises | 175 Training Hours
- **Control Panel Wiring** — 5 Exercises | 100 Training Hours
- **Inverter and UPS** — 6 Exercises | 78 Training Hours

Pillar 2: The Applied Engine

Translates theory into measurable application using project-based work and quantitative analysis.

Bridging Theory and Practice

NATIONAL STANDARDS ALIGNMENT

Auditable Technical Depth

Modules integrate fundemental scientific principles with verifiable mathematical models and VBA code.

National Standards Alignment

Every learning activity maps directly to SAQA/NQF Unit Standards for full auditability.

Pillar 3: The Credentialing & IP Hub

Achievement verified through national frameworks, blockchain certificates, and structured patent lifecycles.

The Lifelong Ledger

A permanent, dynamic record of an individual's accumulated knowledge and innovative contributions.

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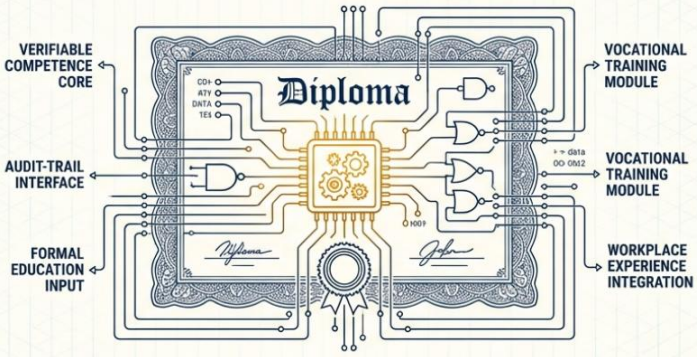
THE AUDIT-GRADE CAREER ENGINE

A Blueprint for Verifiable Competence & Industrial Reform in South Union Africa



A modular framework that synthesizes formal education, vocational training, and workplace experience into a single, auditable system.

Authored by Tshingombe Tshitadi Fiston | Systems Architect & Educator

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A NEW PARADIGM FOR PROFESSIONAL CREDENTIALING

1. THE DIAGNOSIS (THE LABYRINTH)

- **Systemic Friction:** Current TVET systems suffer from administrative deadlocks, unaccredited voids, and "irregularity" backlogs.
- **Siloed Data:** Formal qualifications exist in isolated databases, disconnected from practical, hands-on skills.

2. THE SOLUTION (THE ENGINE)

- **Automated Verification:** An audit-grade engine that maps skills to verifiable data points using VBA logic.
- **Quantitative Rigor:** Utilizes a calculus-driven backbone to measure outcomes—from project costs to energy harvested.

3. THE APPLICATION (THE SCALE)

- **Macro-Impact:** Deployed to solve energy governance (S.E.E.E.I.S.U.A) and harmonize curriculum across South Union Africa.

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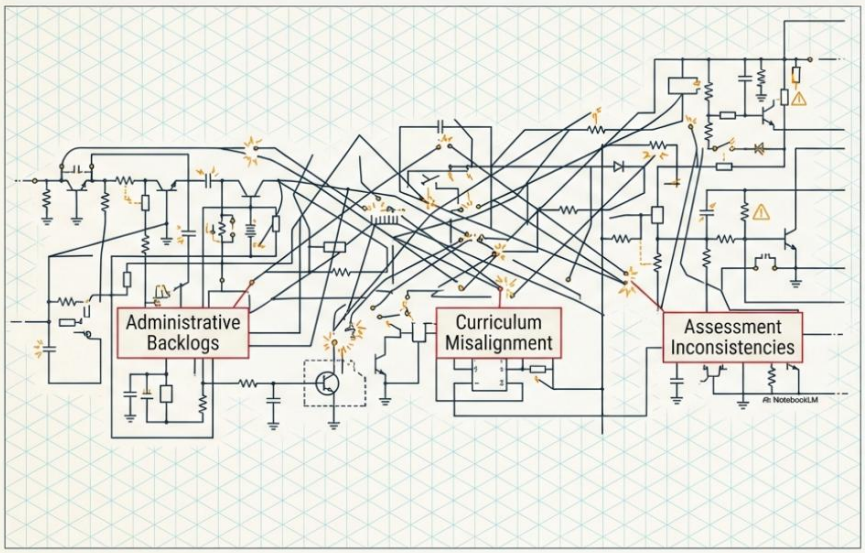
THE LABYRINTH: NAVIGATING THE BROKEN CIRCUIT OF TVET



- **IRREGULARITIES:** "Nated ncv combination irregularity" causing delays in diploma releases.
- **THE FEEDBACK LOOP FAILURE:** A disconnect between "Trade Theory" and practical industry needs (Eskom, City Power).
- **THE UNACCREDITED VOID:** Learners investing time in qualifications rejected due to "non-credible processes".

THE PARADOX OF EXPERTISE: WHILE SYSTEMS DECLINED, INNOVATION ACCELERATED

NSF I-Corps: Declined due to eligibility criteria.

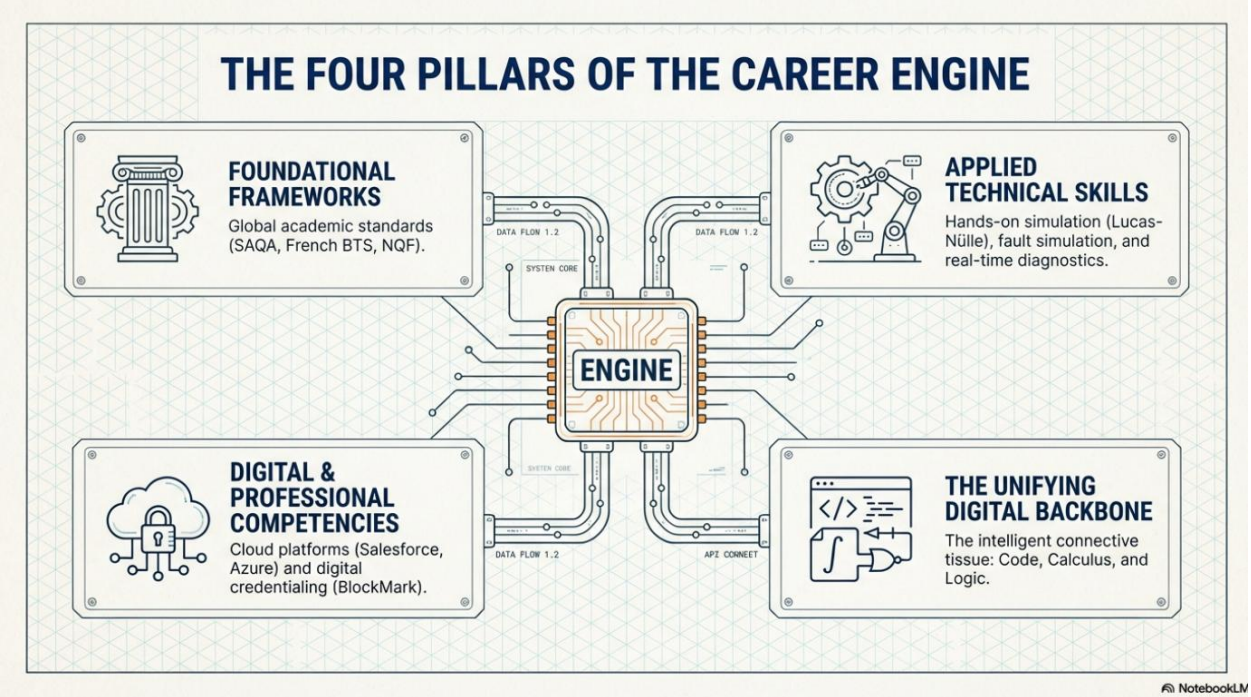
NRF Funding: Rejected based on institutional affiliation.

GitHub

Microsoft Learn: Verified skill acquisition in Data & AI.

Internet Archive: Published engineering works.

"The official record of rejections tells only one side of the story. During the same period, a parallel track of creation was underway."


THE FOUR PILLARS OF THE CAREER ENGINE
FOUNDATIONAL FRAMEWORKS
Global academic standards (SAQA, French BTS, NQF).
APPLIED TECHNICAL SKILLS
Hands-on simulation (Lucas-Nülle), fault simulation, and real-time diagnostics.
ENGINE
DIGITAL & PROFESSIONAL COMPETENCIES
Cloud platforms (Salesforce, Azure) and digital credentialing (BlockMark).
THE UNIFYING DIGITAL BACKBONE
The intelligent connective tissue: Code, Calculus, and Logic.
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Under the Hood: Quantifying Performance with Code & Calculus

VBA Logic Structure

```
Type CalculationRecord
    DateStamp As Date
    SimulationTool As String
    ResultSummary As String
    OptimizationType As String
End Type
```

The Calculus of Competence

Total Engagement: $E_{\text{total}} = \int E(t)\,dt$

Energy Harvested: $E = \int \frac{1}{2}\rho A v^3 \eta dt$

Task Completion Rate: $\frac{dN}{dt}$

The system doesn't just list skills; it integrates performance over time to generate audit-grade metrics.

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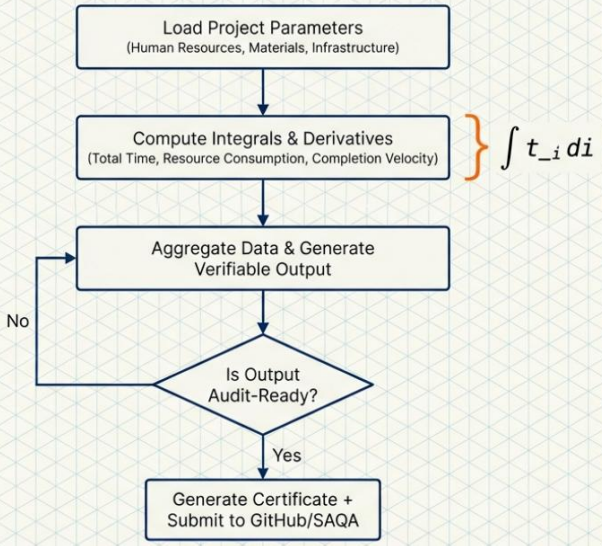
Visualizing the Workflow: An Automated, End-to-End Process



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Applied Innovation I: Advanced Electrical Engineering Research

Smart Grid & Rural Energy

- Cost-benefit analysis of microgrids
- Optimization of battery energy storage

Control Systems & Automation

- AI-Based Predictive Maintenance
- Fault detection in power transformers

Wireless Power Transfer

- High-efficiency resonant inductive coupling
- EV charging applications

Power Systems Analysis

- Kirchhoff's fault law
- Synchronous generators
- Induction motor characteristics

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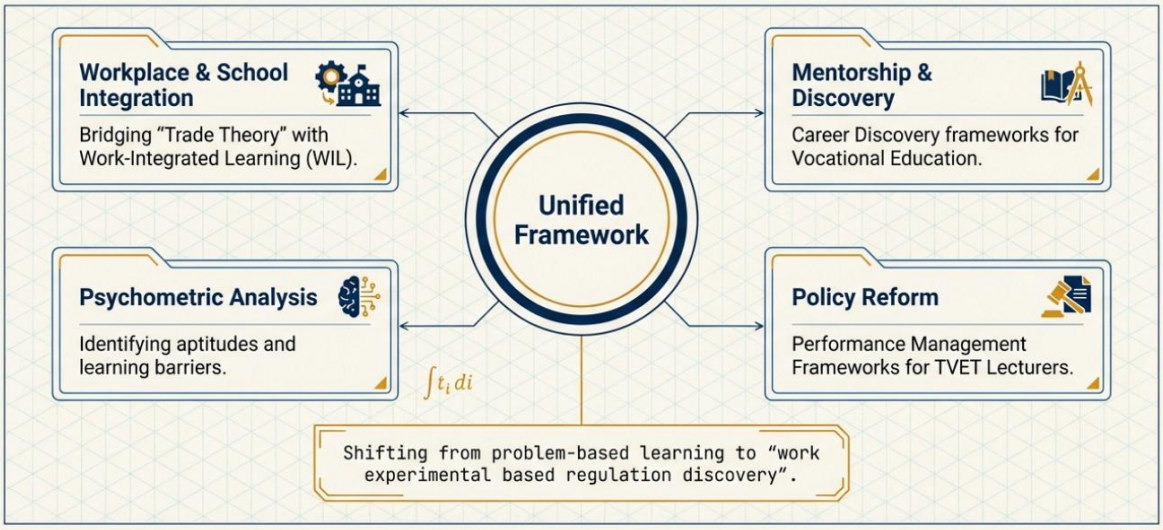
Applied Innovation II: A Unified Framework for Technical Career Development


Workplace & School Integration
Bridging "Trade Theory" with Work-Integrated Learning (WIL).
Mentorship & Discovery
Career Discovery frameworks for Vocational Education.
Unified Framework
Psychometric Analysis
Identifying aptitudes and learning barriers.
Policy Reform
Performance Management Frameworks for TVET Lecturers.
$\int t_i \, di$
Shifting from problem-based learning to "work experimental based regulation discovery".

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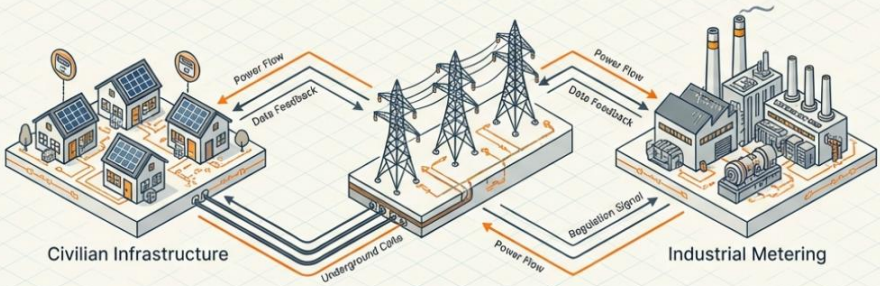
Strategic Proposal: Project S.E.E.E.I.S.U.A.

Support for Energy-Efficient Electrical & Industrial Systems in South Union Africa



The Scope

- Interregional energy regulation
- Harmonized city power governance
- Industrial metering calibration

The Metrics

- Energy Indexing: `Daily 10 kWh/cell`
- Conflict Load Management: `70,000 MW`
- Budget: `R50 billion modernization`

Impact

- Reduced consumer-supplier conflict
- Enhanced audit tracking

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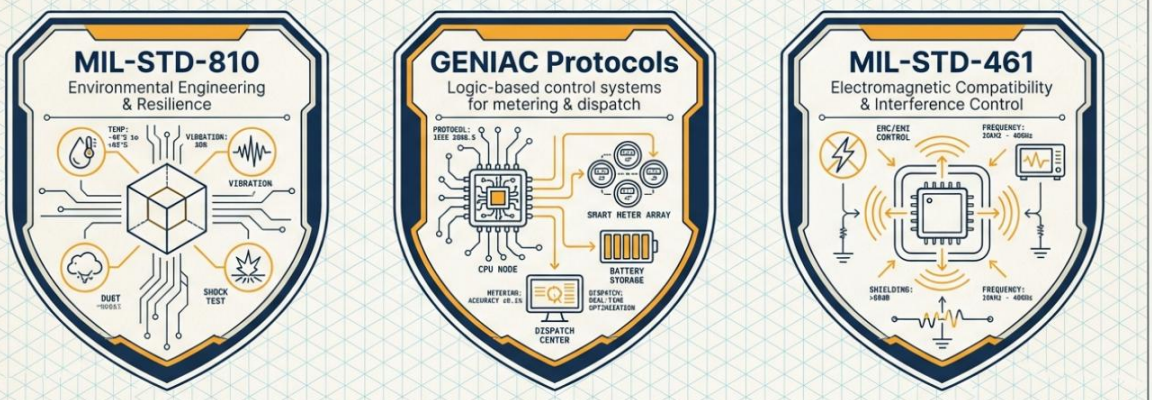
Operational Standards: GENIAC & GENIE CORP

Bridging the gap between civilian chaos and military precision.



The Goal: Peace-driven, intergovernmental energy security through rigorous audit trails.

DOC. NO. GEK-STD-2024-REV A
OCT 26, 2024

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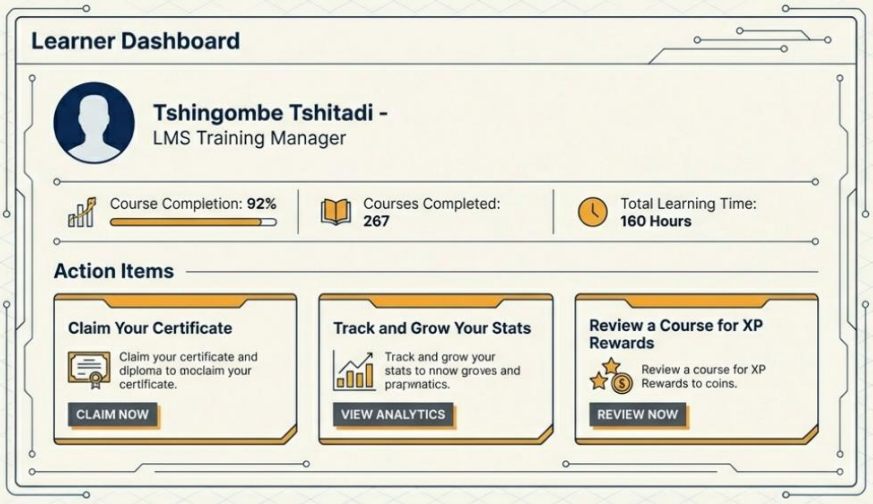
The Interface: E-Portfolios & Gamified Progress


Learner Dashboard
Tshingombe Tshitadi -
LMS Training Manager
Course Completion: 92%
Courses Completed: 267
Total Learning Time: 160 Hours
Action Items
Claim Your Certificate
Claim your certificate and diploma to moclaim your certificate.
CLAIM NOW
Track and Grow Your Stats
Track and grow your stats to nnow groves and prapwnatics.
VIEW ANALYTICS
Review a Course for XP Rewards
Review a course for XP Rewards to coins.
REVIEW NOW

A system that turns learning into a verifiable, gamified data record.

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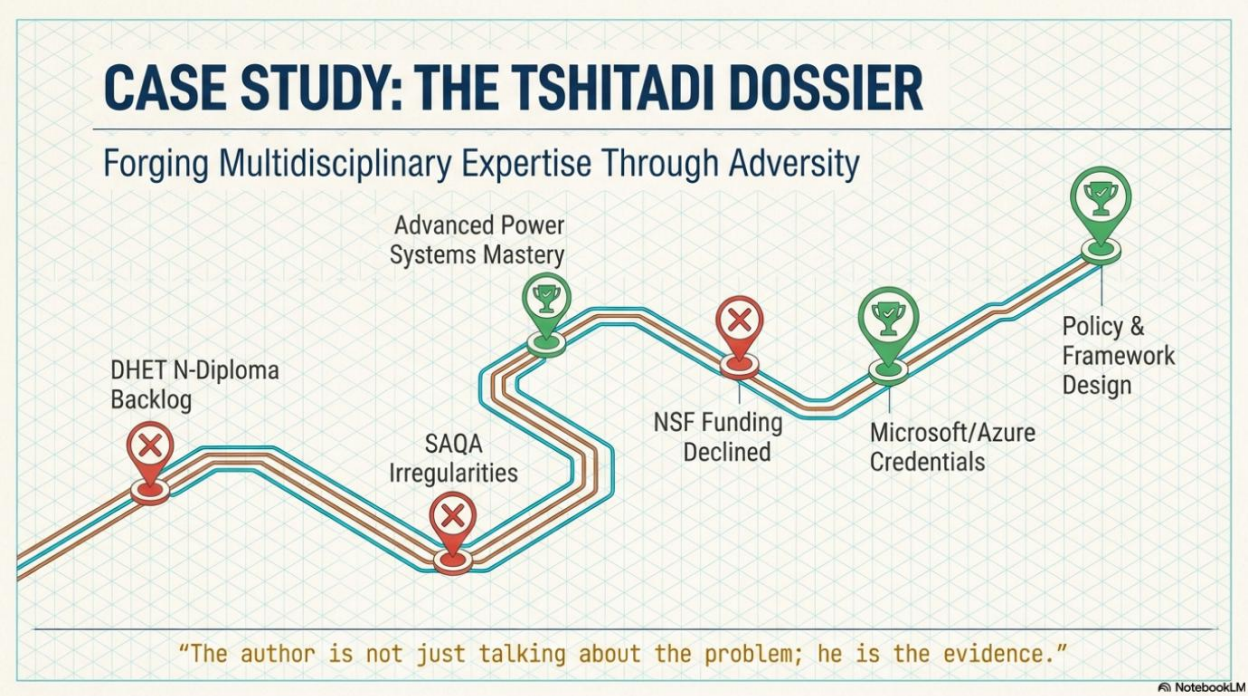
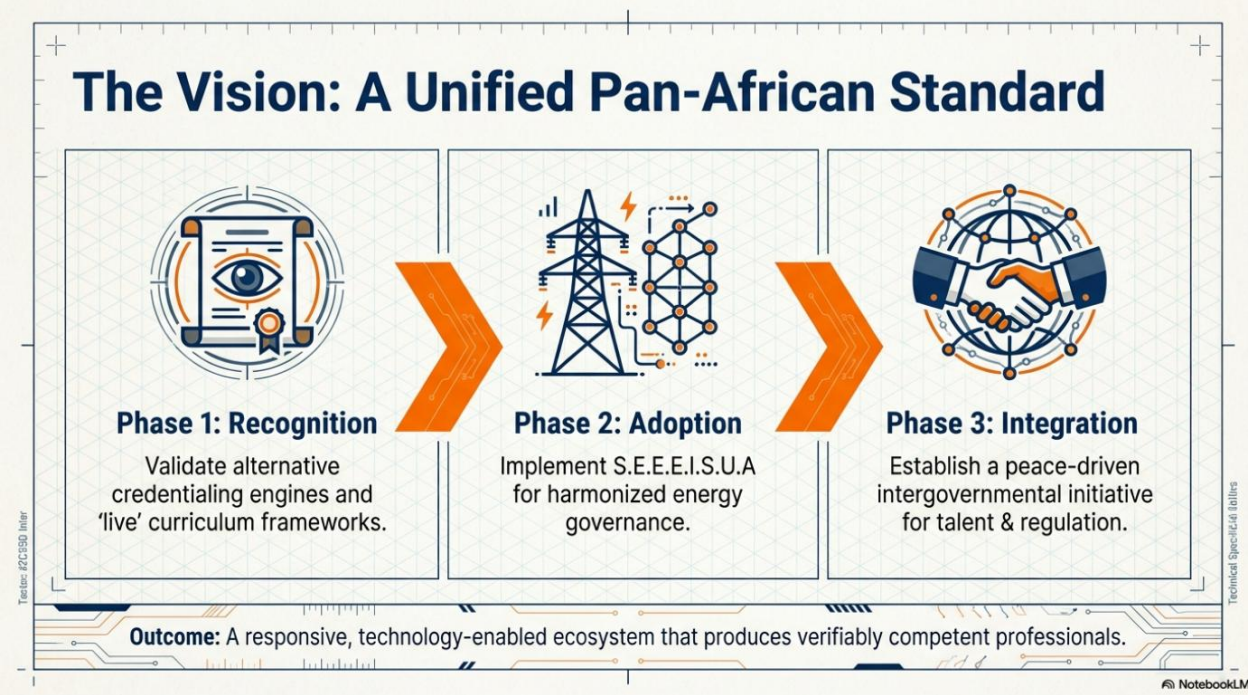

CASE STUDY: THE TSHITADI DOSSIER
Forging Multidisciplinary Expertise Through Adversity
DHET N-Diploma Backlog
SAQA Irregularities
Advanced Power Systems Mastery
NSF Funding Declined
Microsoft/Azure Credentials
Policy & Framework Design
"The author is not just talking about the problem; he is the evidence."
NotebookLM


The Vision: A Unified Pan-African Standard
Phase 1: Recognition
Validate alternative credentialing engines and 'live' curriculum frameworks.
Phase 2: Adoption
Implement S.E.E.E.I.S.U.A for harmonized energy governance.
Phase 3: Integration
Establish a peace-driven intergovernmental initiative for talent & regulation.
Outcome: A responsive, technology-enabled ecosystem that produces verifiably competent professionals.
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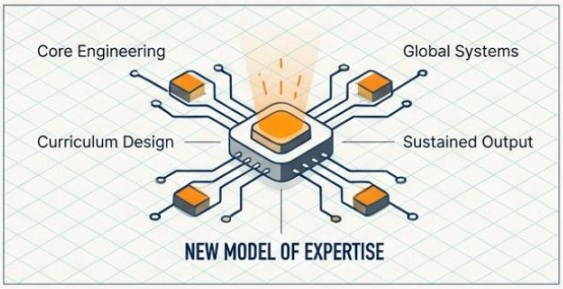
THE CASE FOR A NEW MODEL OF EXPERTISE

The evidence demonstrates sustained, high-level output against significant systemic friction. This journey has forged a unique, multi-disciplinary expertise that integrates core engineering, curriculum design, and a deep understanding of global qualification systems.

The challenge is no longer one of validation, but of recognition and engagement. The work stands on its own merit.



ENGAGE THE EXPERTISE. RECOGNIZE THE INNOVATION.

Name: Tshingombe Tshitadi Fiston
Role: National-grade curriculum architect & Compliance Strategist
Links: GitHub | Internet Archive | Email

JetBrains Mono data_readout

Contact Card

JetBrains Mono Fiston

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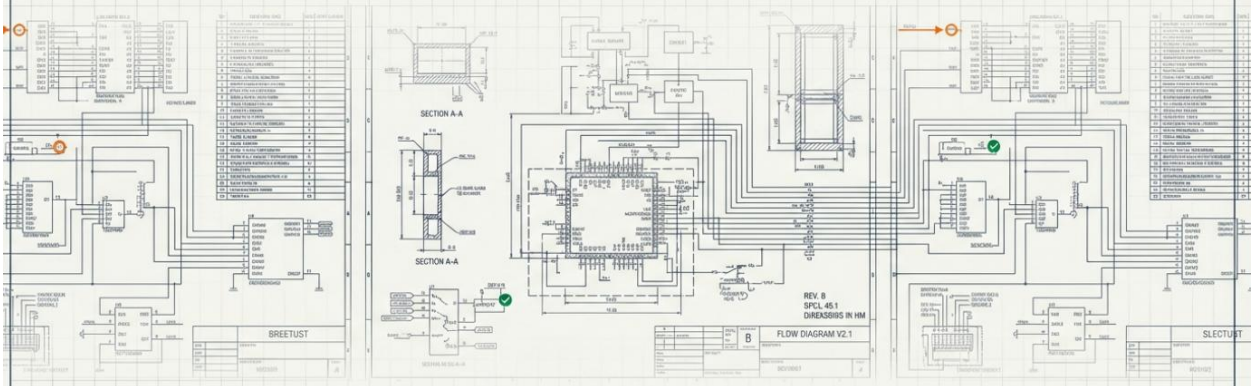
The Audit-Grade Career Engine

A Blueprint for Verifiable Competence



A modular framework synthesizing formal education, vocational training, and workplace experience into a single, auditable system.

Authorized Technical Report & System Architecture
System Architect: Tshingombe Tshitadi

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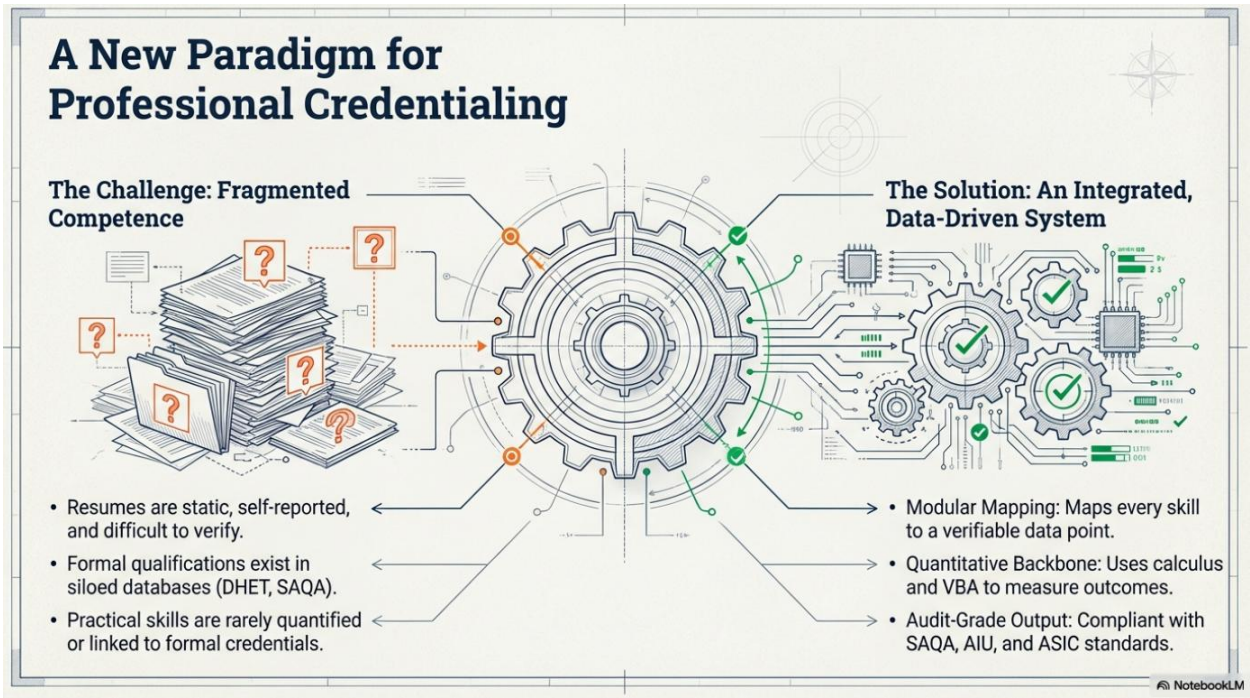
A New Paradigm for Professional Credentialing
The Challenge: Fragmented Competence
The Solution: An Integrated, Data-Driven System
• Resumes are static, self-reported, and difficult to verify.
• Formal qualifications exist in siloed databases (DHET, SAQA).
• Practical skills are rarely quantified or linked to formal credentials.
• Modular Mapping: Maps every skill to a verifiable data point.
• Quantitative Backbone: Uses calculus and VBA to measure outcomes.
• Audit-Grade Output: Compliant with SAQA, AIU, and ASIC standards.
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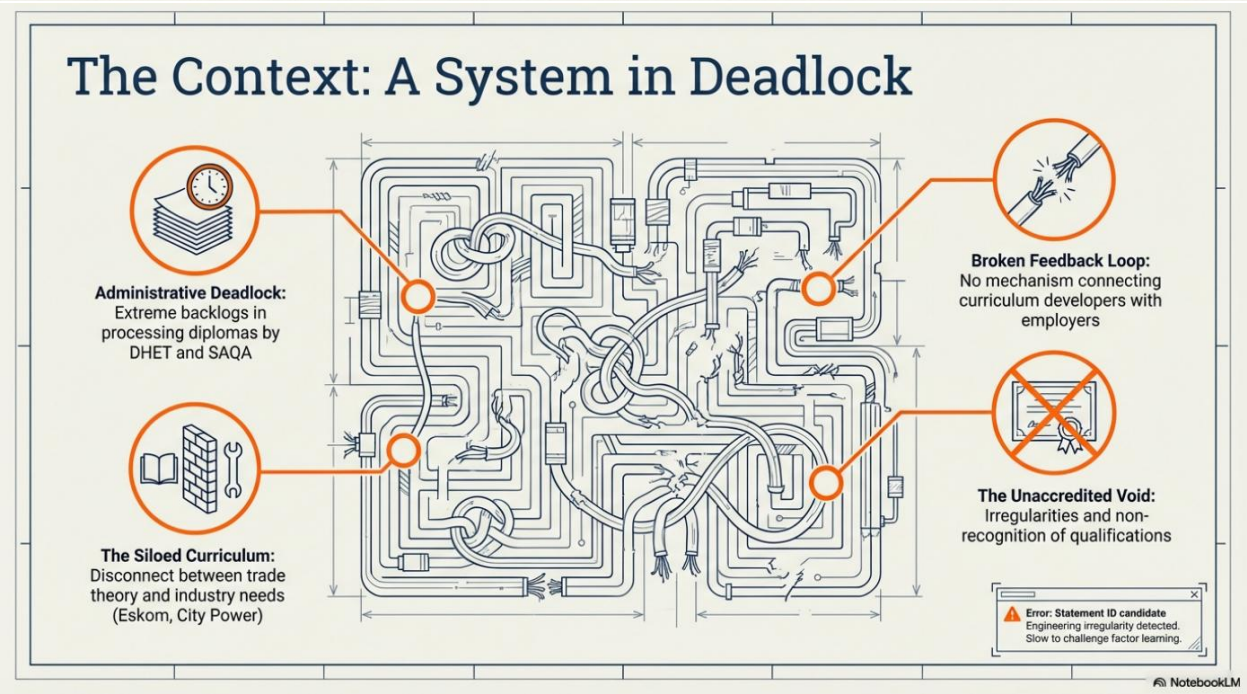
The Context: A System in Deadlock
Administrative Deadlock: Extreme backlogs in processing diplomas by DHET and SAQA
The Siloed Curriculum: Disconnect between trade theory and industry needs (Eskom, City Power)
Broken Feedback Loop: No mechanism connecting curriculum developers with employers
The Unaccredited Void: Irregularities and non-recognition of qualifications
Error: Statement ID candidate
Engineering irregularity detected.
Slow to challenge factor learning.
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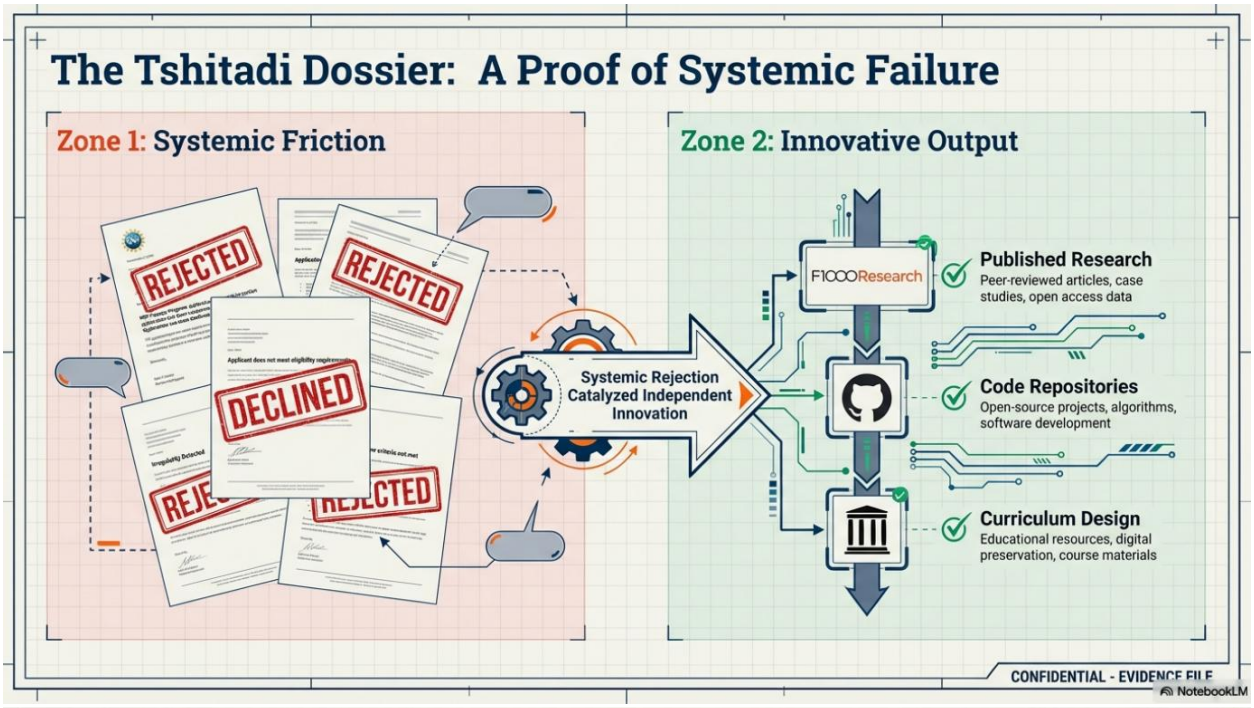
The Tshitadi Dossier: A Proof of Systemic Failure
Zone 1: Systemic Friction
REJECTED
REJECTED
DECLINED
Systemic Rejection Catalyzed Independent Innovation
Zone 2: Innovative Output
F1000Research
Published Research
Peer-reviewed articles, case studies, open access data
Code Repositories
Open-source projects, algorithms, software development
Curriculum Design
Educational resources, digital preservation, course materials
CONFIDENTIAL - EVIDENCE FILE
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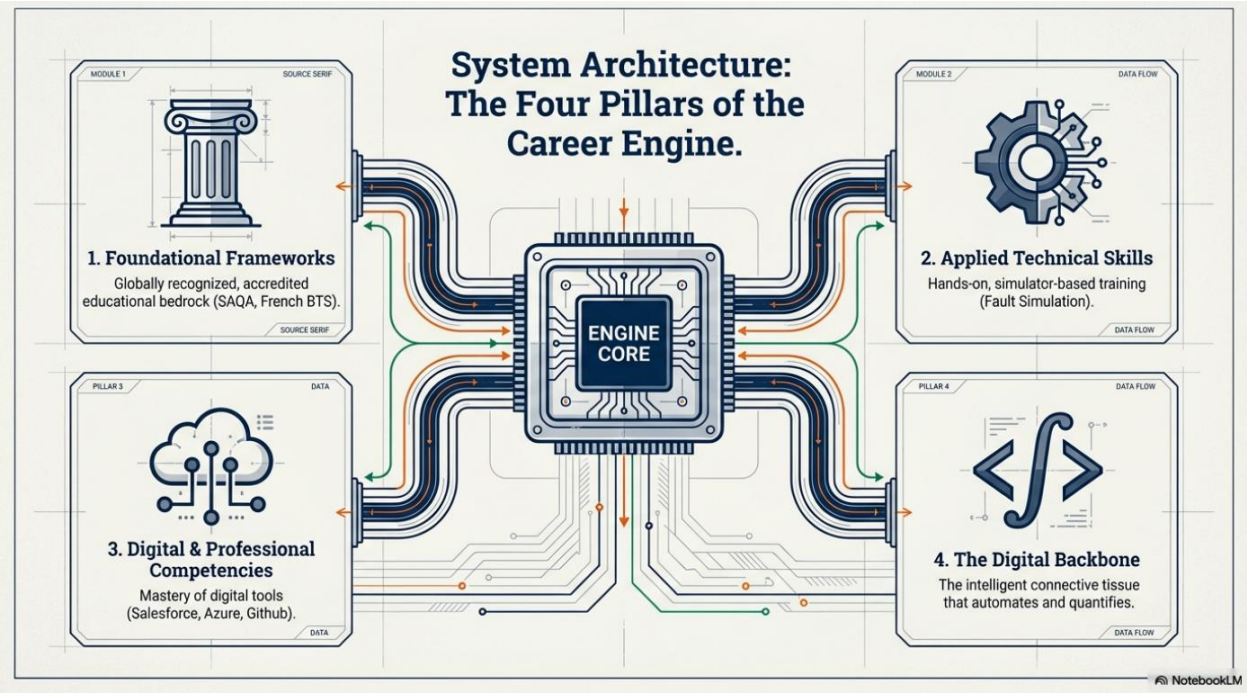

System Architecture: The Four Pillars of the Career Engine.
ENGINE CORE
1. Foundational Frameworks
Globally recognized, accredited educational bedrock (SAQA, French BTS).
2. Applied Technical Skills
Hands-on, simulator-based training (Fault Simulation).
3. Digital & Professional Competencies
Mastery of digital tools (Salesforce, Azure, Github).
4. The Digital Backbone
The intelligent connective tissue that automates and quantifies.
NotebookLM

Pillar 1: Foundational Frameworks & Global Standards

South Africa (SAQA/NQF)

National Certificate: Electrical Engineering (NQF Level 3)

Unit Standard 259037: Design and install electrical wire ways

Qualification	National Certificate: Electrical Engineering (ID 72071)
Unit Standard ID	259037
Title	Design and install electrical wire ways
Level	NQF Level 3
Credits	8

France (Higher Education)

Brevet de Technicien Supérieur (BTS) Électrotechnique

Competency Block RNCP41007BC01: Preliminary study and design of an installation

Étude et conception préliminaire d'une installation
(Preliminary study and design of an installation)

India (ITI)

NSQF Level 5 Electrician Trade

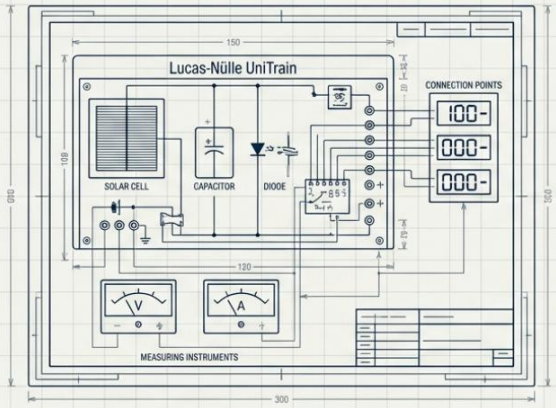
Modules: Wiring, soldering, workshop safety

Automated Credit Mapping & Compatibility Verification

CONFIDENTIAL - EVIDE NotebookLM

Pillar 2: Applied Technical Skills & Fault Simulation

From Didactic Theory to Real-World Diagnostics



German Didactic Systems (Lucas-Nülle) - Guided Fault Simulation

NIMI Curriculum: Electrician (NSQF Level 5)		
Module No:	Module Title:	Allocated Time:
3	Wires, Joints - Soldering - U.G. Cables	125 Hrs

The system tracks Fault Resolution and Module Completion as binary data points.

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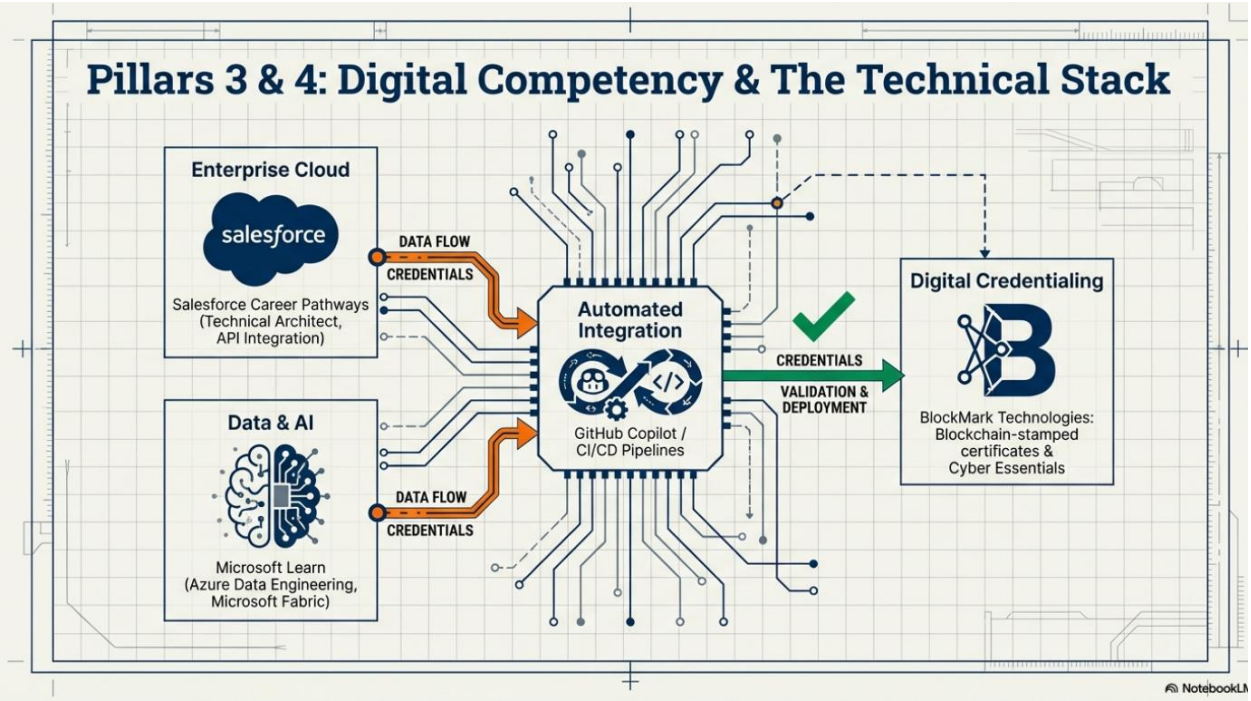
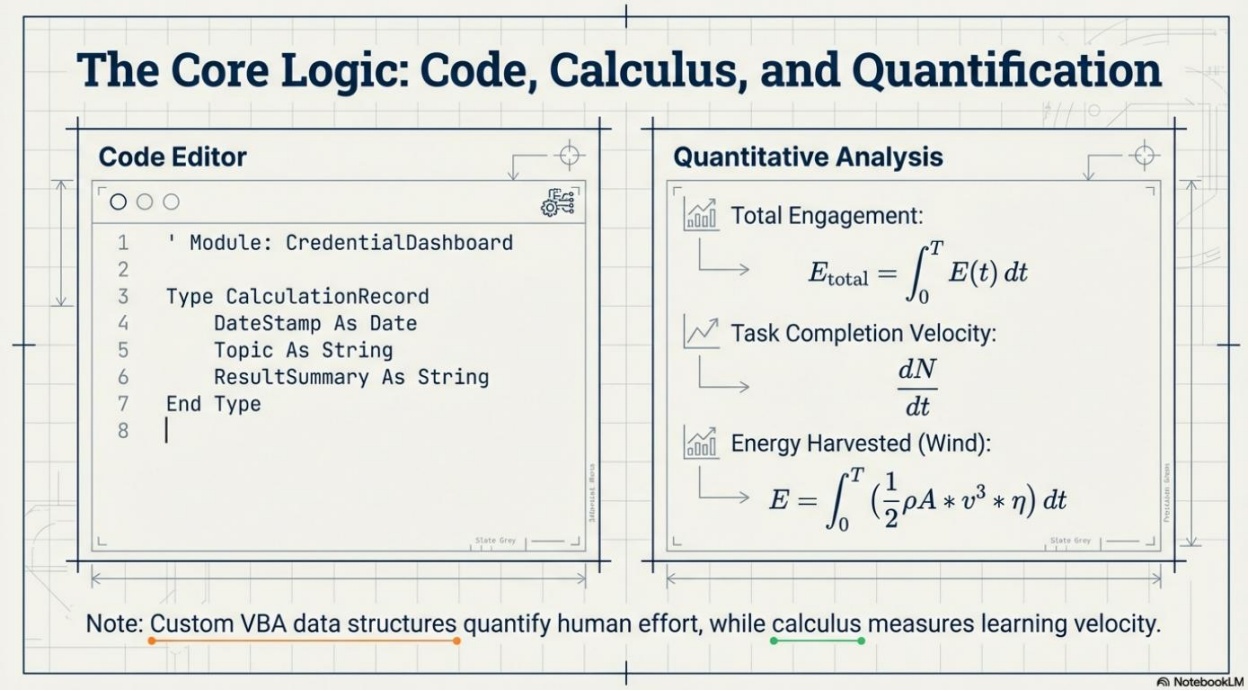
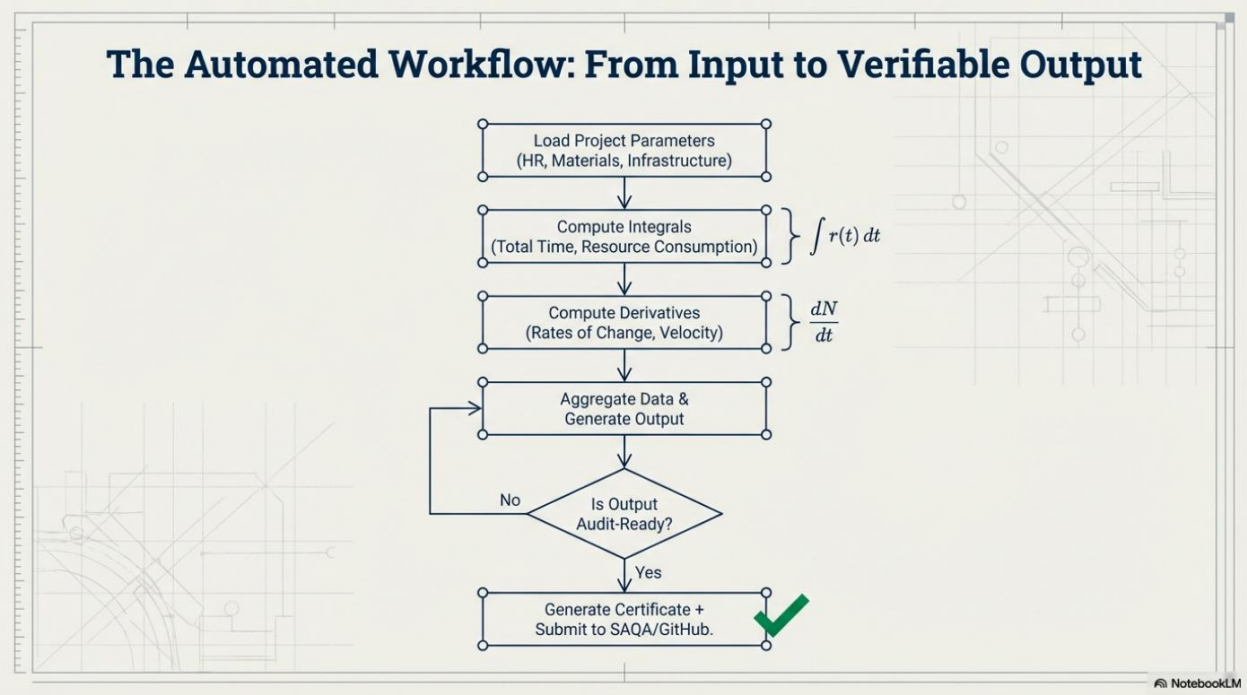
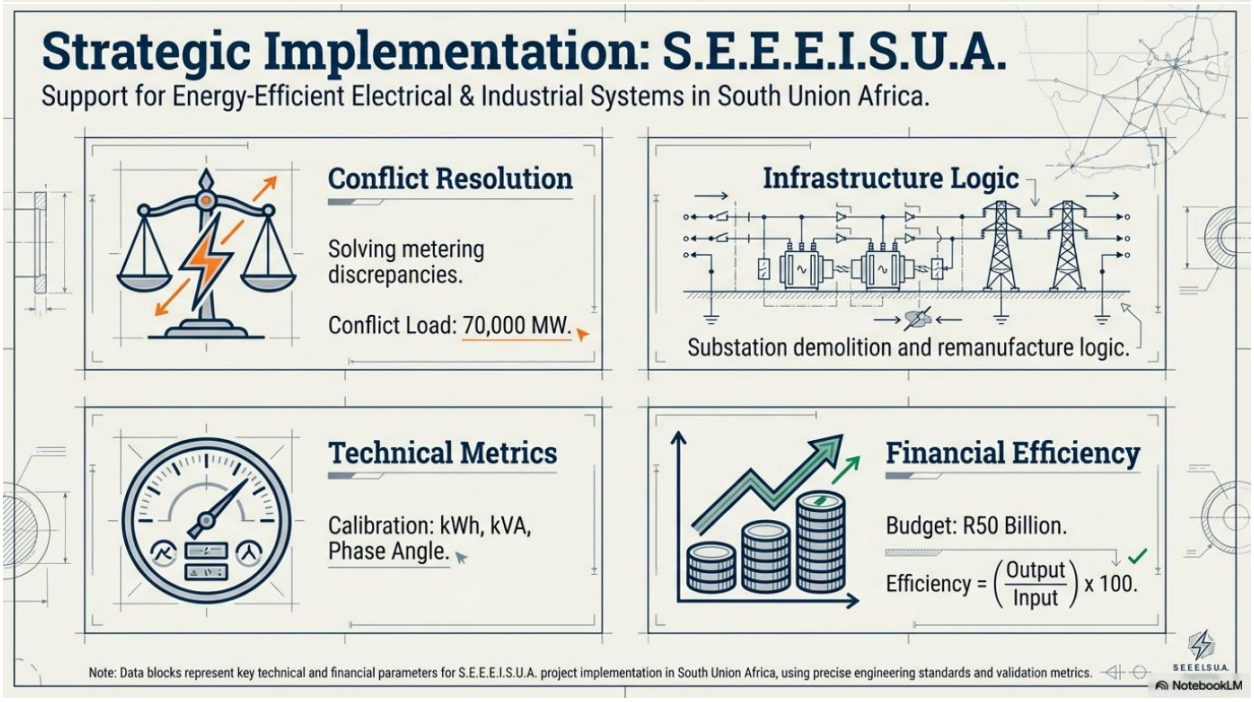
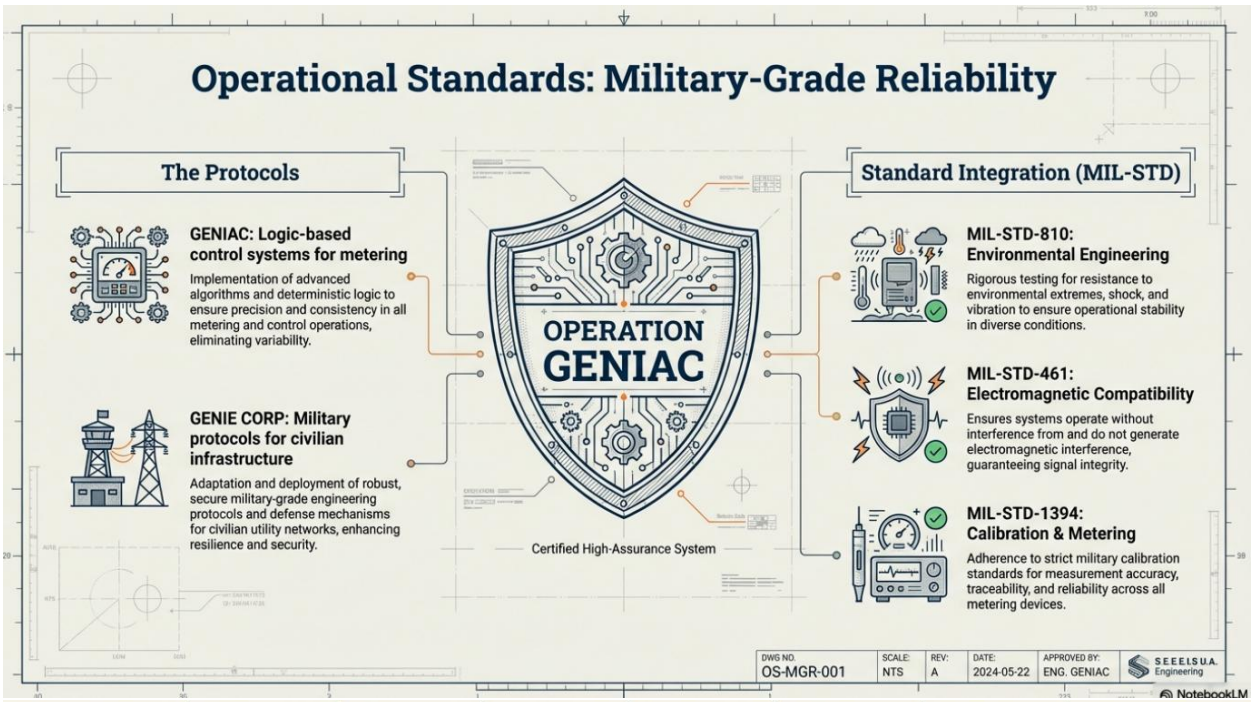
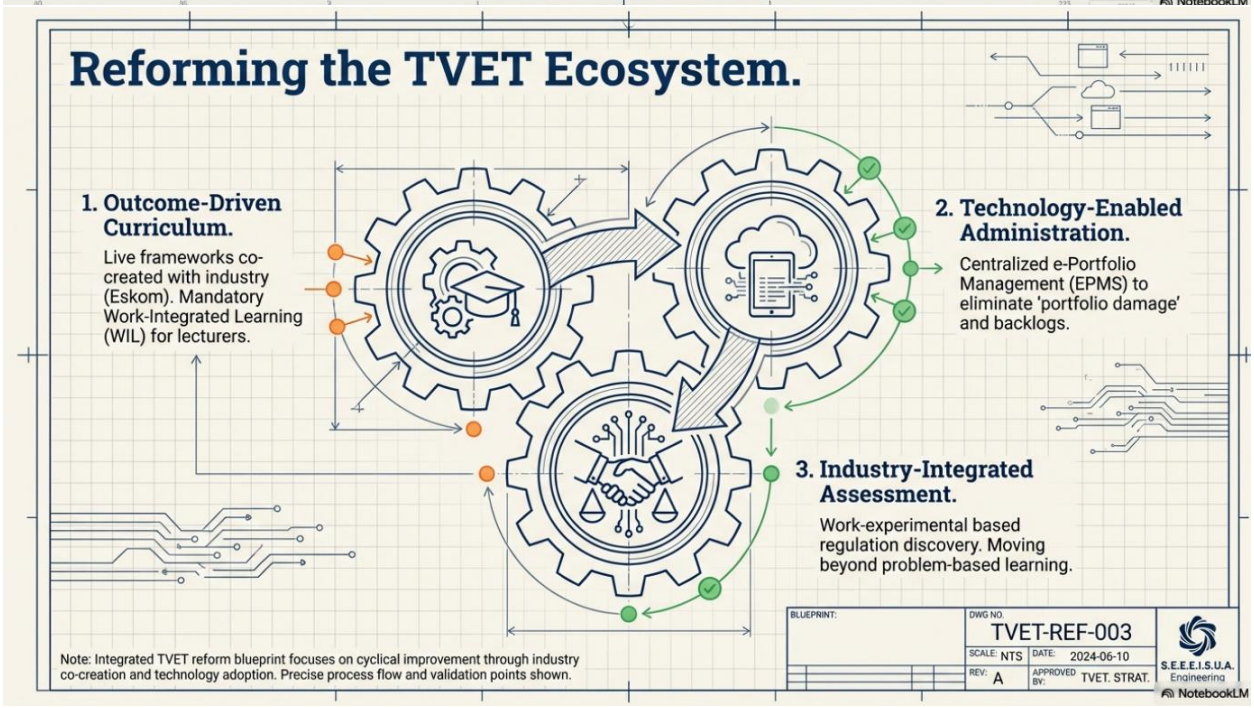

Pillars 3 & 4: Digital Competency & The Technical Stack
Enterprise Cloud
salesforce
Salesforce Career Pathways (Technical Architect, API Integration)
DATA FLOW
CREDENTIALS
Data & AI
Microsoft Learn (Azure Data Engineering, Microsoft Fabric)
DATA FLOW
CREDENTIALS
Automated Integration
GitHub Copilot / CI/CD Pipelines
CREDENTIALS
VALIDATION & DEPLOYMENT
Digital Credentialing
BlockMark Technologies: Blockchain-stamped certificates & Cyber Essentials
NotebookLM

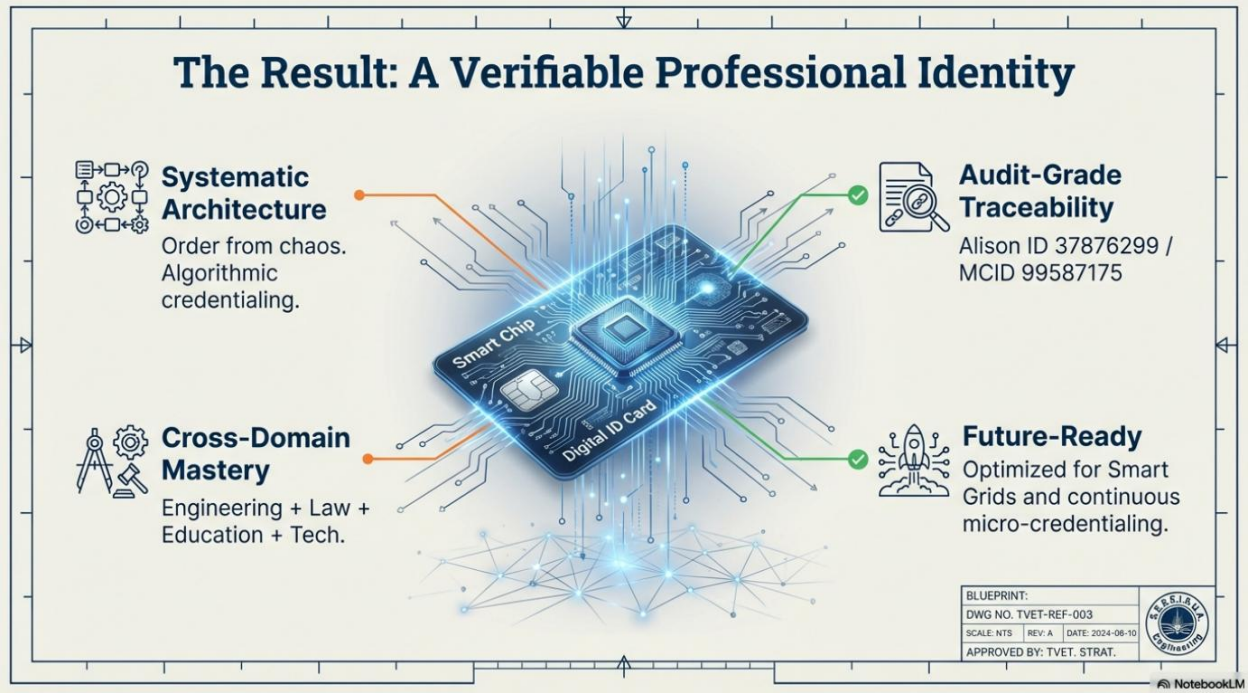

The Core Logic: Code, Calculus, and Quantification
Code Editor
1 ' Module: CredentialDashboard
2
3 Type CalculationRecord
4 DateStamp As Date
5 Topic As String
6 ResultSummary As String
7 End Type
8
Quantitative Analysis
Total Engagement:
$E_{total} = \int_0^T E(t)\,dt$
Task Completion Velocity:
$\frac{dN}{dt}$
Energy Harvested (Wind):
$E = \int_0^T \left(\frac{1}{2}\rho A * v^3 * \eta\right) dt$
Note: Custom VBA data structures quantify human effort, while calculus measures learning velocity.
NotebookLM


The Automated Workflow: From Input to Verifiable Output
Load Project Parameters (HR, Materials, Infrastructure)
Compute Integrals (Total Time, Resource Consumption)
$\int r(t)\,dt$
Compute Derivatives (Rates of Change, Velocity)
$\frac{dN}{dt}$
Aggregate Data & Generate Output
Is Output Audit-Ready?
No
Yes
Generate Certificate + Submit to SAQA/GitHub.
NotebookLM

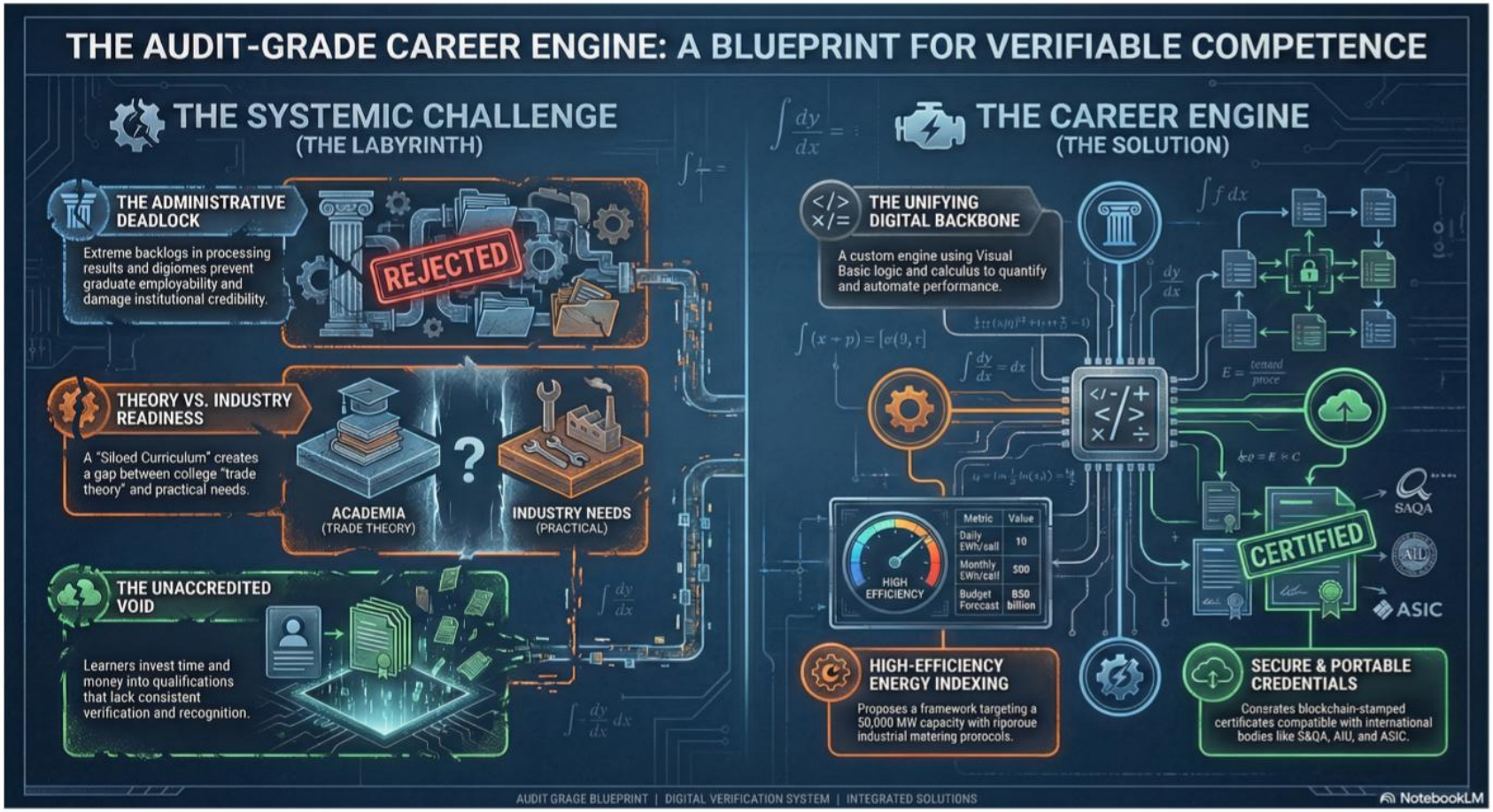

Strategic Implementation: S.E.E.E.I.S.U.A.
Support for Energy-Efficient Electrical & Industrial Systems in South Union Africa.
Conflict Resolution
Solving metering discrepancies.
Conflict Load: 70,000 MW.
Infrastructure Logic
Substation demolition and remanufacture logic.
Technical Metrics
Calibration: kWh, kVA, Phase Angle.
Financial Efficiency
Budget: R50 Billion.
Efficiency = (Output / Input) x 100.
Note: Data blocks represent key technical and financial parameters for S.E.E.E.I.S.U.A. project implementation in South Union Africa, using precise engineering standards and validation metrics.
SEEELSUA.
NotebookLM


Operational Standards: Military-Grade Reliability
The Protocols
GENIAC: Logic-based control systems for metering
Implementation of advanced algorithms and deterministic logic to ensure precision and consistency in all metering and control operations, eliminating variability.
GENIE CORP: Military protocols for civilian infrastructure
Adaptation and deployment of robust, secure military-grade engineering protocols and defense mechanisms for civilian utility networks, enhancing resilience and security.
OPERATION GENIAC
Certified High-Assurance System
Standard Integration (MIL-STD)
MIL-STD-810: Environmental Engineering
Rigorous testing for resistance to environmental extremes, shock, and vibration to ensure operational stability in diverse conditions.
MIL-STD-461: Electromagnetic Compatibility
Ensures systems operate without interference from and do not generate electromagnetic interference, guaranteeing signal integrity.
MIL-STD-1394: Calibration & Metering
Adherence to strict military calibration standards for measurement accuracy, traceability, and reliability across all metering devices.
DWG NO. OS-MGR-001
SCALE: NTS
REV: A
DATE: 2024-05-22
APPROVED BY: ENG. GENIAC
S.E.E.E.I.S.U.A. Engineering
NotebookLM


Reforming the TVET Ecosystem.
1. Outcome-Driven Curriculum.
Live frameworks co-created with industry (Eskom). Mandatory Work-Integrated Learning (WIL) for lecturers.
2. Technology-Enabled Administration.
Centralized e-Portfolio Management (EPMS) to eliminate 'portfolio damage' and backlogs.
3. Industry-Integrated Assessment.
Work-experimental based regulation discovery. Moving beyond problem-based learning.
Note: Integrated TVET reform blueprint focuses on cyclical improvement through industry co-creation and technology adoption. Precise process flow and validation points shown.
BLUEPRINT:
DWG NO. TVET-REF-003
SCALE: NTS
DATE: 2024-06-10
REV: A
APPROVED BY: TVET. STRAT.
S.E.E.E.I.S.U.A. Engineering
NotebookLM

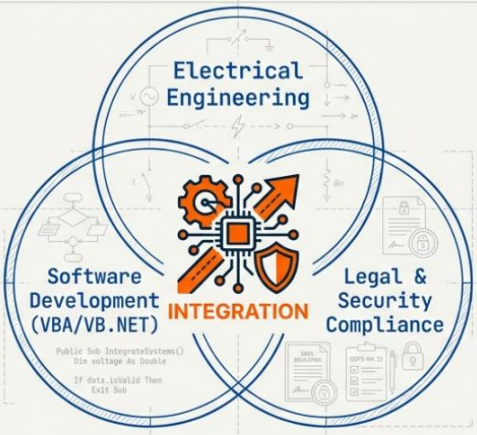

The Result: A Verifiable Professional Identity
Systematic Architecture
Order from chaos. Algorithmic credentialing.
Audit-Grade Traceability
Alison ID 37876299 / MCID 99587175
Smart Chip
Digital ID Card
Cross-Domain Mastery
Engineering + Law + Education + Tech.
Future-Ready
Optimized for Smart Grids and continuous micro-credentialing.
BLUEPRINT:
DWG NO. TVET-REF-003
SCALE: NTS
REV: A
DATE: 2024-08-10
APPROVED BY: TVET. STRAT.
NotebookLM

Engage the Expertise.
Recognize the Innovation.
The evidence demonstrates a sustained, high-level output of technical and pedagogical work against significant systemic friction.
The challenge is no longer one of validation, but of engagement.
Author: Tshingombe Tshitadi Fiston
Role: National-grade Curriculum Architect & Technical Educator
Frameworks: Career Engine & S.E.E.E.I.S.U.A
Reference: Audit-Grade Portfolio Available on Request.
BLUEPRINT: TVET-REF-004
AUTHOR: T. T. FISTON
NotebookLM


THE AUDIT-GRADE CAREER ENGINE: A BLUEPRINT FOR VERIFIABLE COMPETENCE
THE SYSTEMIC CHALLENGE
(THE LABYRINTH)
THE ADMINISTRATIVE DEADLOCK
Extreme backlogs in processing results and digiomes prevent graduate employability and damage institutional credibility.
REJECTED
THEORY VS. INDUSTRY READINESS
A "Siloed Curriculum" creates a gap between college "trade theory" and practical needs.
ACADEMIA
(TRADE THEORY)
?
INDUSTRY NEEDS
(PRACTICAL)
THE UNACCREDITED VOID
Learners invest time and money into qualifications that lack consistent verification and recognition.
THE CAREER ENGINE
(THE SOLUTION)
THE UNIFYING DIGITAL BACKBONE
A custom engine using Visual Basic logic and calculus to quantify and automate performance.
HIGH EFFICIENCY
Metric
Value
Daily EWh/sall
10
Monthly EWh/cell
500
Budget Forecast
B50 billion
HIGH-EFFICIENCY ENERGY INDEXING
Proposes a framework targeting a 50,000 MW capacity with riporoue industrial metering prorocols.
CERTIFIED
SAQA
AIU
ASIC
SECURE & PORTABLE CREDENTIALS
Consrates blockchain-stamped certificates compatible with international bodies like S&QA, AIU, and ASIC.
AUDIT GRAGE BLUEPRINT | DIGITAL VERIFICATION SYSTEM | INTEGRATED SOLUTIONS
NotebookLM

Integrated Professional Portfolio
Engineering, Systems Automation & Legal Compliance

SYSTEM SPEC: V.2025.1
DATA INTEGRITY: 99.98%
COMPLIANCE LEVEL: ISO 27001 CERTIFIED



AUTOMATION EFFICIENCY: +45%
RISK MITIGATION: HIGH
INFRASTRUCTURE: HYBRID

Bridging the gap between physical infrastructure, digital logic, and regulatory frameworks. This portfolio demonstrates a unified approach to designing and managing complex systems where engineering precision meets robust software automation and stringent legal security protocols.

Candidate: Tshingombe Tshitadi Fiston
Portfolio Review 2025
ID: 4A-X7-G9-L2
APPROVED FOR RELEASE

DOC. REF: ENG-DEV-LEG-INT-2025 // REV 1.0 //

NotebookLM

Core Competencies & Cross-Functional Expertise

A multi-disciplinary professional profile combining technical precision with regulatory procedural knowledge.

JetBrains Mono, technical "Blueprint Blue"

Skill Pillar 1: Software & Automation

- VBA & VB.NET Programming
- Microsoft Azure DevOps & Work Item Management
- Database Integration (MS Access/SQL)

JetBrains Mono, technical "Blueprint Blue"

Skill Pillar 2: Electrical Engineering

- PLC Programming & Logic Design
- Smart Metering Technology (3-Phase)
- Motor Control (TeSys) & Schematics

JetBrains Mono, technical "Blueprint Blue"

Skill Pillar 3: Security & Legal Compliance

- POPIA & Privacy Act Implementation
- Labour Law (CCMA & Labour Court Procedures)
- Physical Security & Policing Protocols (SAPS/PSIRA)

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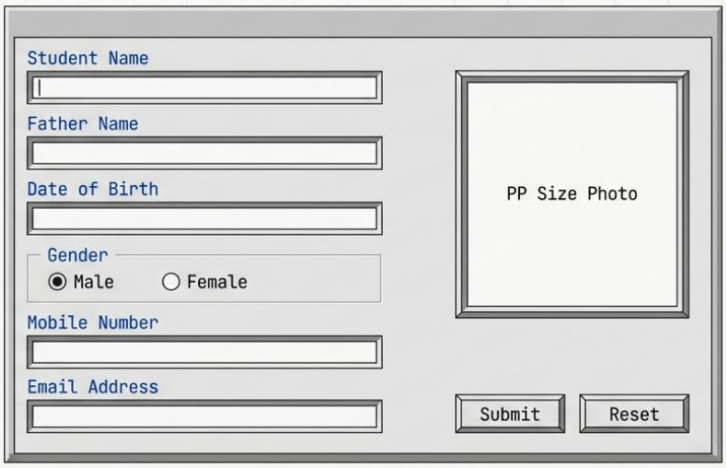
Project Spotlight: Automated Student Registration System

VBA-based application for educational data management with dynamic user forms.

Technical Implementation:

- Custom UserForm class
- Dynamic initialization (UserForm_Initialize)
- Robust error handling for empty fields



NotebookI

Backend Logic: Data Validation & Error Handling

Regex Validation (Email)

JetBrains Mono Blueprint Blue (#0047AB)

```
.Pattern = "^[\w-\.]{1,}\@([da-zA-Z-]{1,}\.){1,}\da-zA-Z-]{2,3}$"
```

Enforces strict email format validation.

Data Integrity Check

```
If Trim(.txtMobile.Value) = "" Or Len(.txtMobile.Value) < 10...
```

Numeric verification and length checks for mobile data.

Automated File Management

```
FileCopy imgSourcePath, imgDestination
```

Directory creation and photo handling.

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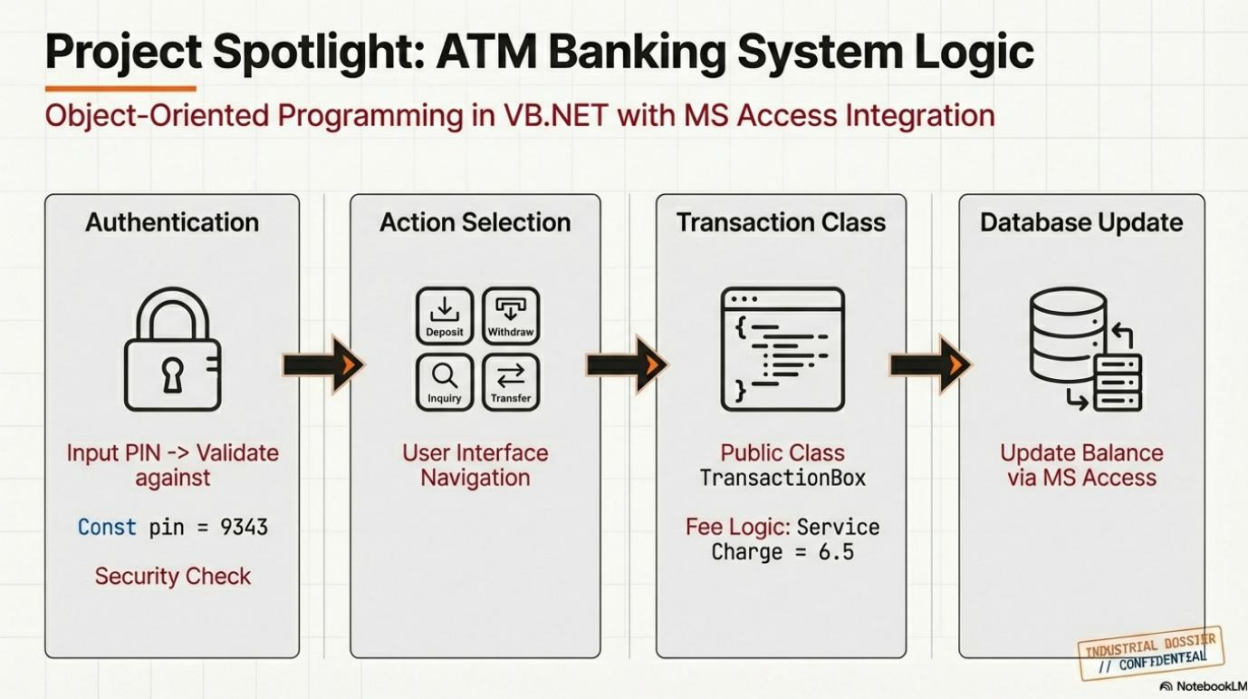
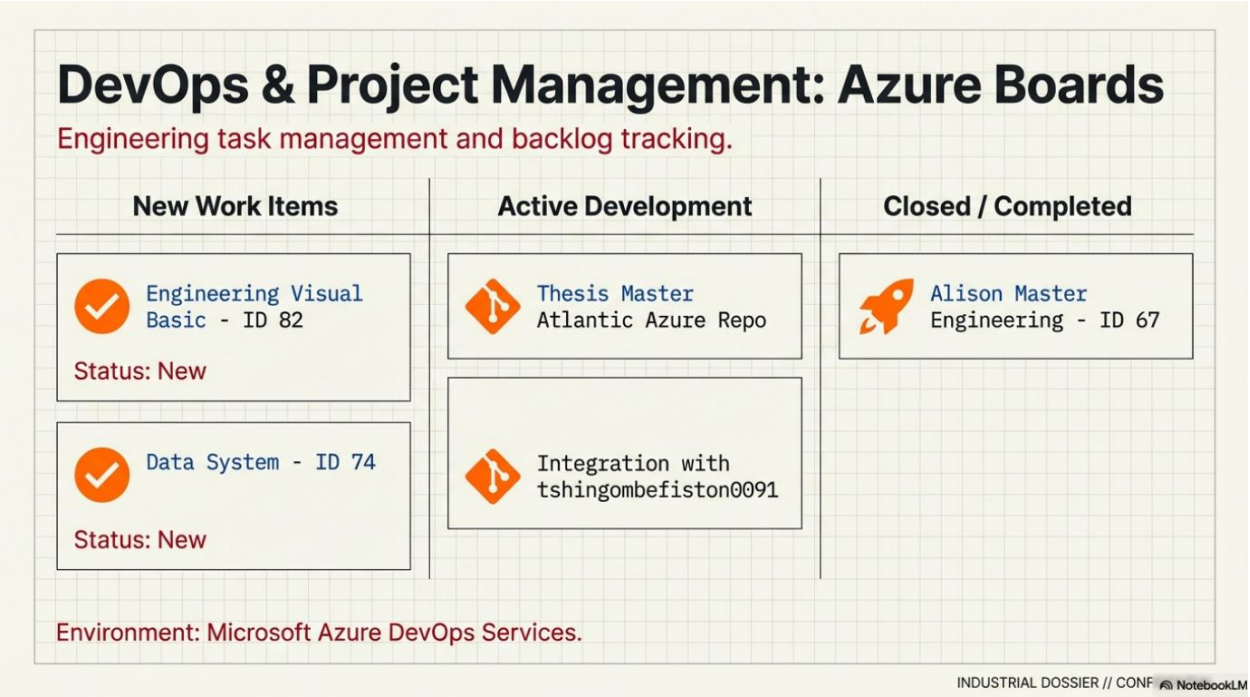
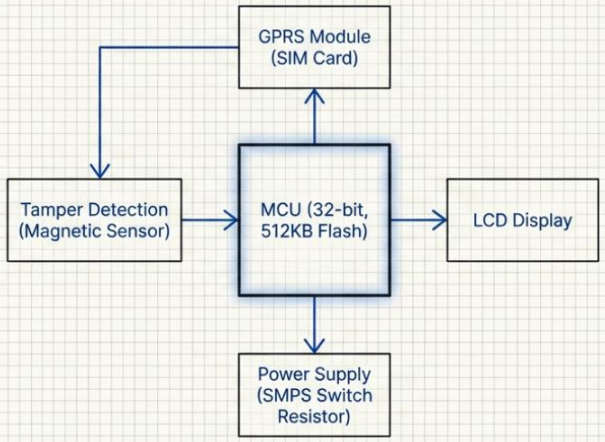

Project Spotlight: ATM Banking System Logic
Object-Oriented Programming in VB.NET with MS Access Integration
Authentication
Input PIN -> Validate against
Const pin = 9343
Security Check
Action Selection
Deposit
Withdraw
Inquiry
Transfer
User Interface Navigation
Transaction Class
Public Class TransactionBox
Fee Logic: Service Charge = 6.5
Database Update
Update Balance via MS Access
INDUSTRIAL DOSSIER // CONFIDENTIAL
NotebookLM


DevOps & Project Management: Azure Boards
Engineering task management and backlog tracking.
New Work Items
Engineering Visual Basic - ID 82
Status: New
Data System - ID 74
Status: New
Active Development
Thesis Master
Atlantic Azure Repo
Integration with tshingombefiston0091
Closed / Completed
Alison Master
Engineering - ID 67
Environment: Microsoft Azure DevOps Services.
INDUSTRIAL DOSSIER // CONF
NotebookLM

Electrical Engineering: Three-Phase Smart Metering

Hardware Specifications: Series MKM35512 AC Static Watt Hour Smart Meter

PARAMETER	SPECIFICATION
Voltage	240 VAC +20%
Current Range	0-60A (Nominal 10A, Dynamic up to 72A)
Frequency	50Hz +5%
Accuracy	Class 0.5 (IEC 62056)
Interface	IR (9600/8-N-1)



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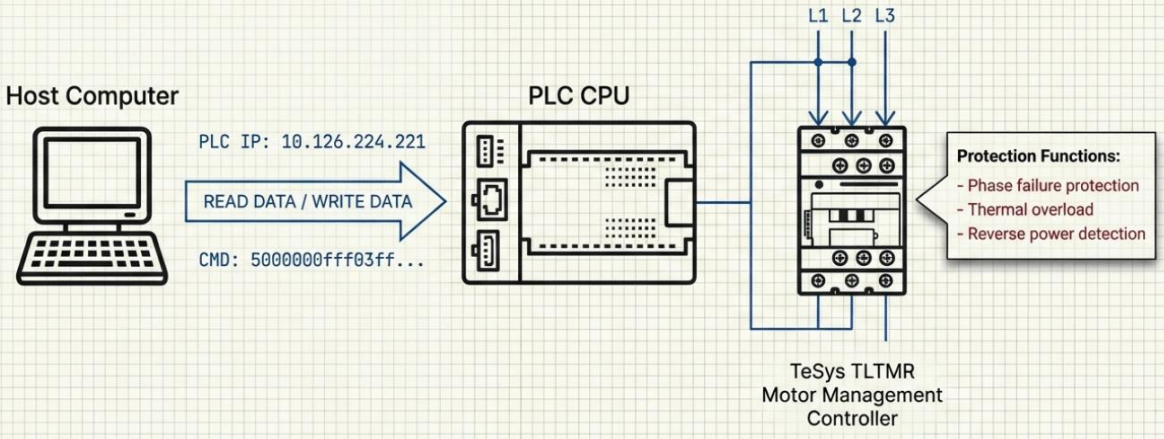
Industrial Automation: PLC & Motor Control Systems



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Innovation Case Study: Web-Based Crime Management System

Proposed Solution for Samara City Main Police Station

The Problem (Manual)

- Paper-based docket systems.
- Manual hand-to-hand information transfer.
- Zero real-time data visibility.

The Solution (Digital)

- Online citizen complaint filing.
- Automated database storage & retrieval.
- Crime Heatmaps for hotspot detection.

Based on research proposal by Demelash Lemmi Ettisa & Minota Milkias.

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NotebookLM

Operational Security & Policing Expertise

From Detective Service to Community Engagement

STAGE 01	STAGE 02	STAGE 03	STAGE 04
Investigation Principles	Crime Prevention	Traffic & Safety	Community
• Crime Scene Management • Docket Management	• Sector Policing • CSC (Community Service Centre) Management	• Incident Collision Scenarios • Traffic Safety Protocols	• Community Engagement • Conflict Resolution

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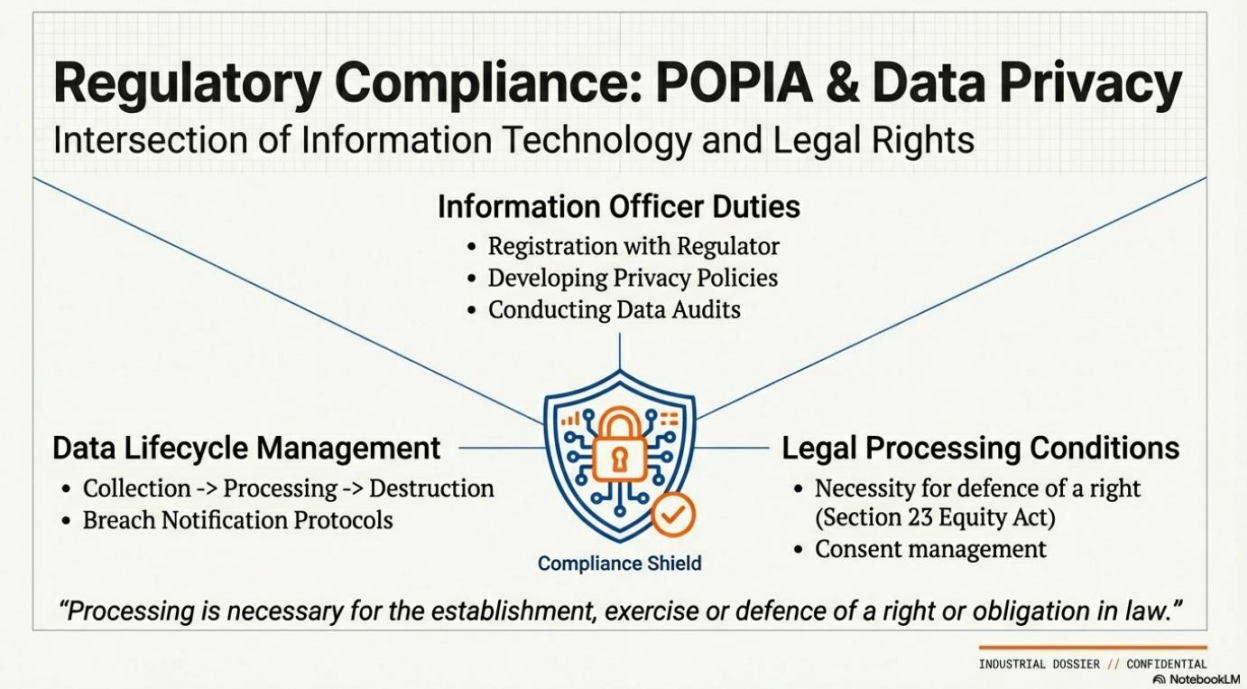
Regulatory Compliance: POPIA & Data Privacy
Intersection of Information Technology and Legal Rights
Information Officer Duties
• Registration with Regulator
• Developing Privacy Policies
• Conducting Data Audits
Data Lifecycle Management
• Collection -> Processing -> Destruction
• Breach Notification Protocols
Compliance Shield
Legal Processing Conditions
• Necessity for defence of a right (Section 23 Equity Act)
• Consent management
"Processing is necessary for the establishment, exercise or defence of a right or obligation in law."
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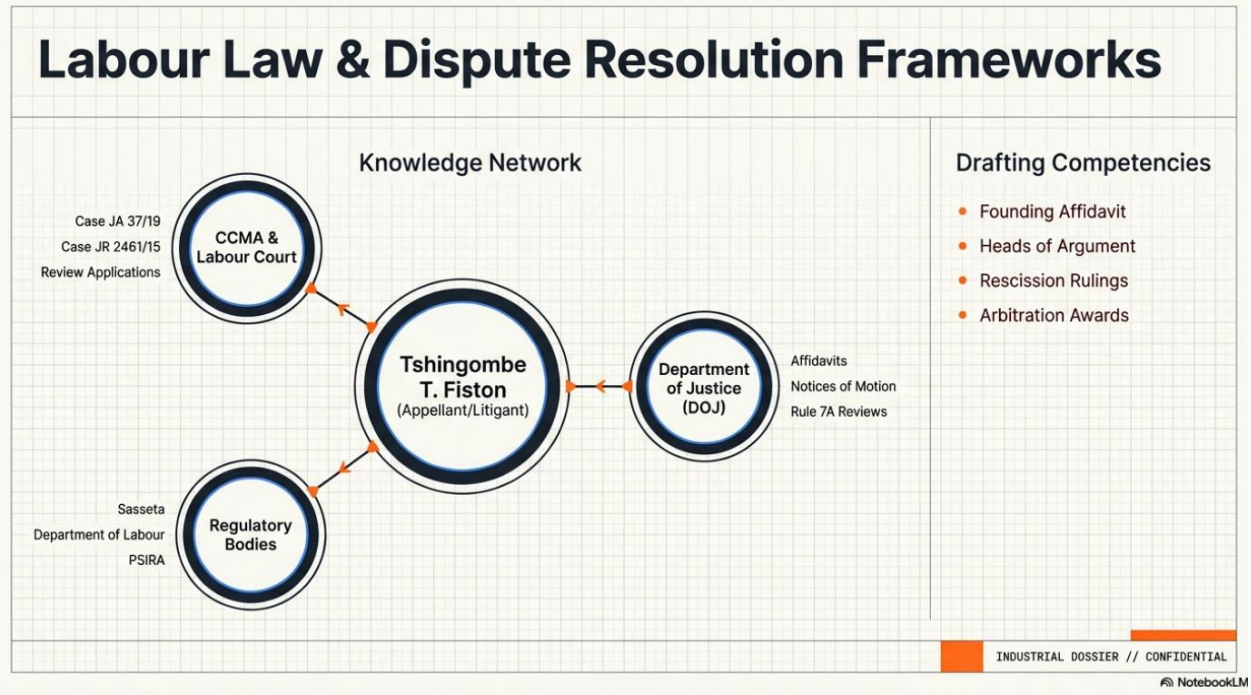
NotebookLM


Labour Law & Dispute Resolution Frameworks
Knowledge Network
Case JA 37/19
Case JR 2461/15
Review Applications
CCMA & Labour Court
Tshingombe T. Fiston
(Appellant/Litigant)
Department of Justice (DOJ)
Affidavits
Notices of Motion
Rule 7A Reviews
Sasseta
Department of Labour
PSIRA
Regulatory Bodies
Drafting Competencies
• Founding Affidavit
• Heads of Argument
• Rescission Rulings
• Arbitration Awards
INDUSTRIAL DOSSIER // CONFIDENTIAL
NotebookLM

Digital Legal Systems: DOJ Online & Protection Orders

Navigating the Department of Justice & Constitutional Development Portal

Service Type	Application	Case Status	URN Identifier
Civil Law	Protection Order (Domestic Violence Act 116)	Screen Application	4702024FCV001046
Civil Law	Harassment Protection (Act 17 of 2011)	In Progress	1042024CIV004539
Deceased Estate	ICT/System Related Query	Awaiting DHA Verification	DOJONLINEEST20240722...

Key Legislation:

- Domestic Violence Act 116 of 1998
- Protection from Harassment Act 17 of 2011

Academic Qualifications & Certifications

Engineering & Trades

Nated / SAQA: Electrical Engineering (N1, N3, N4)

TeSys & Schneider: Motor Management Assessments

Alison: Diploma in Engineering

Information Technology

Microsoft: Azure Security Policy & Info Systems

Cisco: Security Information

Security & Policing

PSIRA Registered Security Officer (Grades A-E)

Met Police UK (Online): Detective Inspector Training

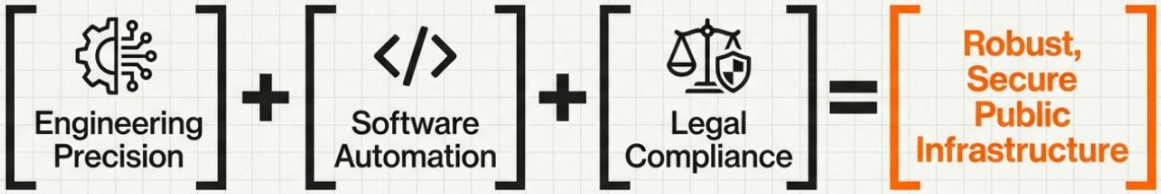
Sasseta: Skills Development

Skills Development

Assessment Expert (Eaton / Schneider)

Safety & Security Seta (Sasseta)

The Vision: Integrated Systems & Secure Operations



Capable of designing systems that work technically, comply legally, and operate securely.

Tshingombe Tshitadi Fiston
Email: tshingombefiston@gmail.com
Phone: 072 529 8946
Phone: 072 529 8946
Web: https://tshingombe.com

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NotebookLM

REF: MKM-35512-TF

PROFESSIONAL PORTFOLIO & TECHNICAL DOSSIER

TSHINGOMBE TSHITADI FISTON

TECHNICAL PILLAR

Electrical Engineering
PLC Automation
Smart Meter Design

DIGITAL PILLAR

Software Development (VB.NET, C#)
Azure DevOps
Database Management

OPERATIONAL PILLAR

Security Operations
SAPS Detective Application
Legal Advocacy & Compliance

NotebookLM

CANDIDATE PROFILE & QUALIFICATIONS

DOC-REF: A182-4Y2

SECURITY LEVEL: CONFIDENTIAL

TSHINGOMBE TSHITADI FISTON

DOB: 10/11/1982 (Age: 42)

ID: Tirc000910610

Nationality: South African Citizen

Status: Married

Title: Officer Engineering / Assessment Expert

DOC-REF: A182-3YZ

CONFIDENTIAL

ACADEMIC RECORD

- **Alison:** Diploma Engineering (2024)
  Inter
- **St Peace College:** Electrical Certificate (2021)
  Inter
- **SAQA:** Award Degree/Diploma (2018)
  Inter
- **Certifications:** Security Policy (Microsoft), Recruitment Training (Met Police UK), Physical Security (Schneider Electric)

CRITICAL

072 529 8946 | tshingombefiston@gmail.com | 1030/20 Percy Street, Hillbrow

NotebookLM

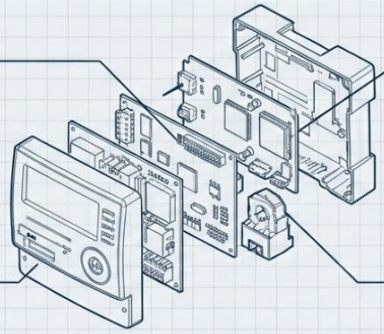
ENGINEERING PROJECT: SMART POWER METER (SERIES MKM35512)

DOC-REF: P-MKM35512-ENG

SECURITY LEVEL: CONFIDENTIAL

Processing Unit: MCU 32 Crystal / Flash Memory 256KB (M24m2)

Connectivity: GPRS/LGT Module (1x SIM) Infrared Interface (IEC 62056)



Power: 3-Phase AC Static Watt Hour / SMPS Power Supply

Sensors: Current Transformer (CT 25000/1tr) / Voltage Sensor

Features

Anti-Tamper: Magnetic Detection, Cover Open Switch

Measurement: 4-Quadrant (Import/Export), Active/Reactive Energy

Display: 8x16 Segment LCD, LED Indicators

CRITICAL

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AUTOMATION LOGIC: PLC PROGRAMMING & THEORY

DOC-REF: A182-472

THEORETICAL FOUNDATION (MATHEMATICS)

Active Power: $P = \frac{1}{T} \int u(t) \cdot i(t)\, dt$

Reactive Power: $Q = \frac{1}{T} \int u(t - 90°) \cdot i(t)\, dt$

RMS: $S = \sqrt{P^2 + Q^2}$

DOC-REF: A182-3Y2

CONFIDENTIAL

PRACTICAL APPLICATION (PLC HEX CODE)

```
CMD STRING:
5000000fff03ff000018000a04010000d*009
500000001
```

5000: Sub Head
FF: PLC Number
03FF: Demand Object
0401: Read Command

CRITICAL

Integration: TeSys T Motor Management Controller / Variable Speed Drives (Power XLD DG1)

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DOC-REF: CMS-SAMARA-DEV

SECURITY LEVEL: CONFIDENTIAL

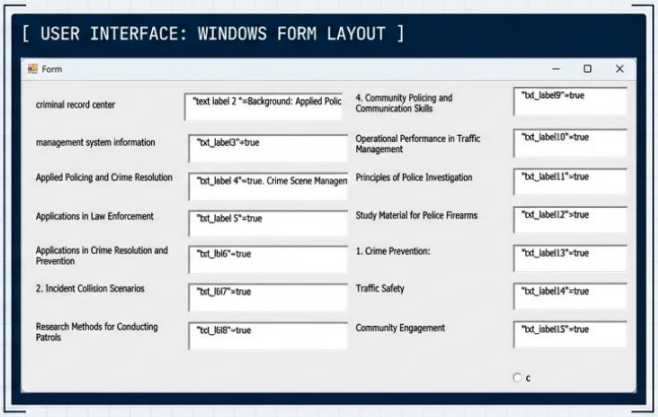
SOFTWARE DEVELOPMENT: CRIME MANAGEMENT SYSTEM

Client: Samara City Main Police Station

[SYSTEM CAPABILITIES]

- **Online Complaint Filing & Retrieval:** Secure web-based platform for citizen reporting and internal tracking.
- **Crime Heatmap Analytics for Patrol Allocation:** Geospatial data visualization to optimize resource deployment based on incident frequency.
- **Citizen-Police Communication Interface:** Direct messaging channel for non-emergency communication and updates.
- **Database Management: Criminal Records & Incident Collision Scenarios:** Comprehensive SQL database for storing and retrieving criminal history and traffic incident data.

[USER INTERFACE: WINDOWS FORM LAYOUT]



CRITICAL

Inter: 072 529 8946 | tshingombefiston@gmail.com | 1030/20 Percy Street, Hillbrow

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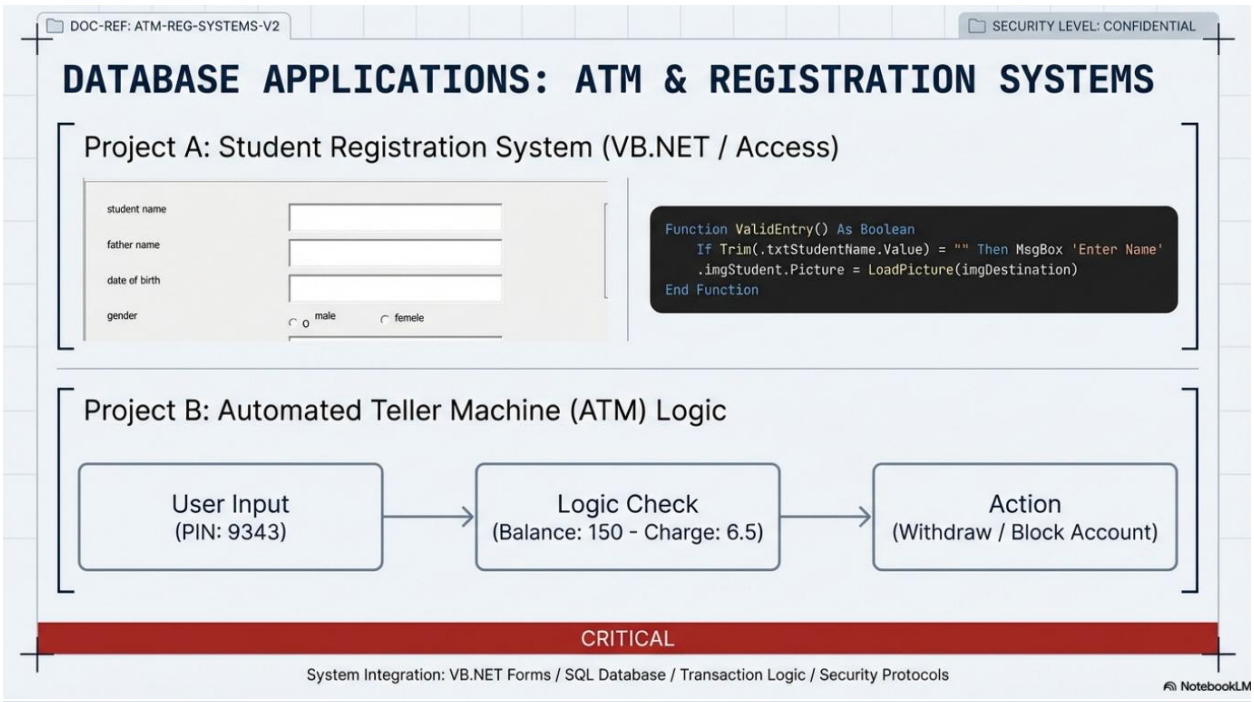
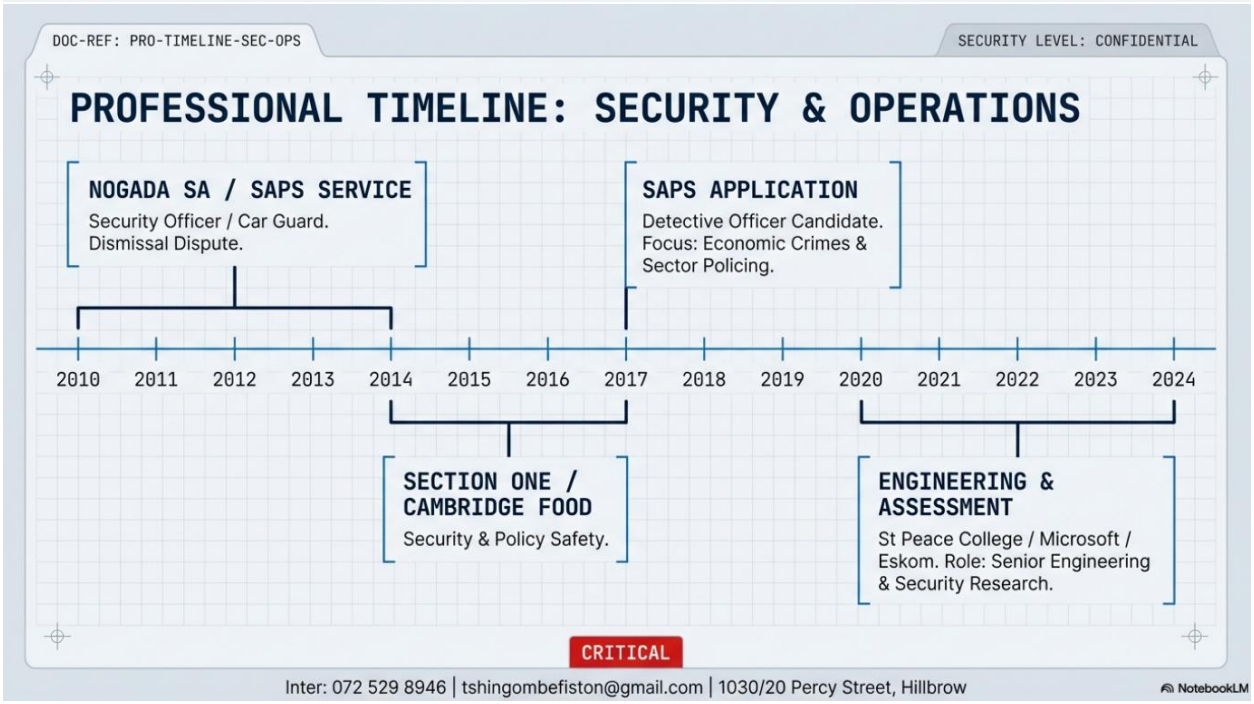

DOC-REF: ATM-REG-SYSTEMS-V2
SECURITY LEVEL: CONFIDENTIAL
DATABASE APPLICATIONS: ATM & REGISTRATION SYSTEMS
Project A: Student Registration System (VB.NET / Access)
student name
father name
date of birth
gender
male
femele
Function ValidEntry() As Boolean
If Trim(.txtStudentName.Value) = "" Then MsgBox 'Enter Name'
.imgStudent.Picture = LoadPicture(imgDestination)
End Function
Project B: Automated Teller Machine (ATM) Logic
User Input
(PIN: 9343)
Logic Check
(Balance: 150 - Charge: 6.5)
Action
(Withdraw / Block Account)
CRITICAL
System Integration: VB.NET Forms / SQL Database / Transaction Logic / Security Protocols
NotebookLM


DOC-REF: PRO-TIMELINE-SEC-OPS
SECURITY LEVEL: CONFIDENTIAL
PROFESSIONAL TIMELINE: SECURITY & OPERATIONS
NOGADA SA / SAPS SERVICE
Security Officer / Car Guard.
Dismissal Dispute.
SAPS APPLICATION
Detective Officer Candidate.
Focus: Economic Crimes &
Sector Policing.
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
SECTION ONE / CAMBRIDGE FOOD
Security & Policy Safety.
ENGINEERING & ASSESSMENT
St Peace College / Microsoft / Eskom. Role: Senior Engineering & Security Research.
CRITICAL
Inter: 072 529 8946 | tshingombefiston@gmail.com | 1030/20 Percy Street, Hillbrow
NotebookLM

DOC-REF: LEGAL-LITIGATION-SUMMARY

SECURITY LEVEL: CONFIDENTIAL

LEGAL STANDING: LITIGATION & LABOUR RELATIONS

Case File Summary

CASE REFERENCE	PARTIES	CORE ISSUE	STATUS
1. CCMA Case JR 2461/15	Applicant vs. Nogada SA / Dept of Labour	Unfair Dismissal & Provident Fund Claims	Review of Arbitration Award
2. Labour Appeal JA 37/19	Applicant vs. PSIRA / Bargaining Council	Security Bargaining Levies & Rescission Ruling	Petition for Leave to Appeal
3. Civil Claims	Applicant vs. Security Sector	Consolidated Claim (R210,500)	Active Litigation

LITIGATION ACTIVE

CRITICAL

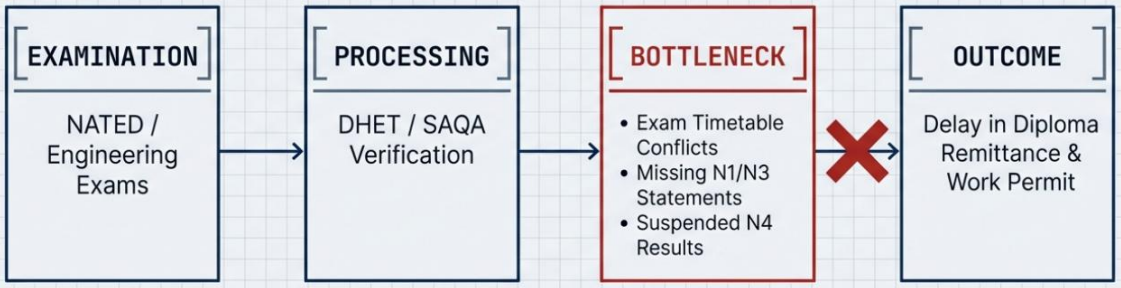
Inter: 072 529 8946 | tshingombefiston@gmail.com | 1030/20 Percy Street, Hillbrow

NotebookLM

DOC-REF: ADMIN-ADVOCACY-CERT-FLOW

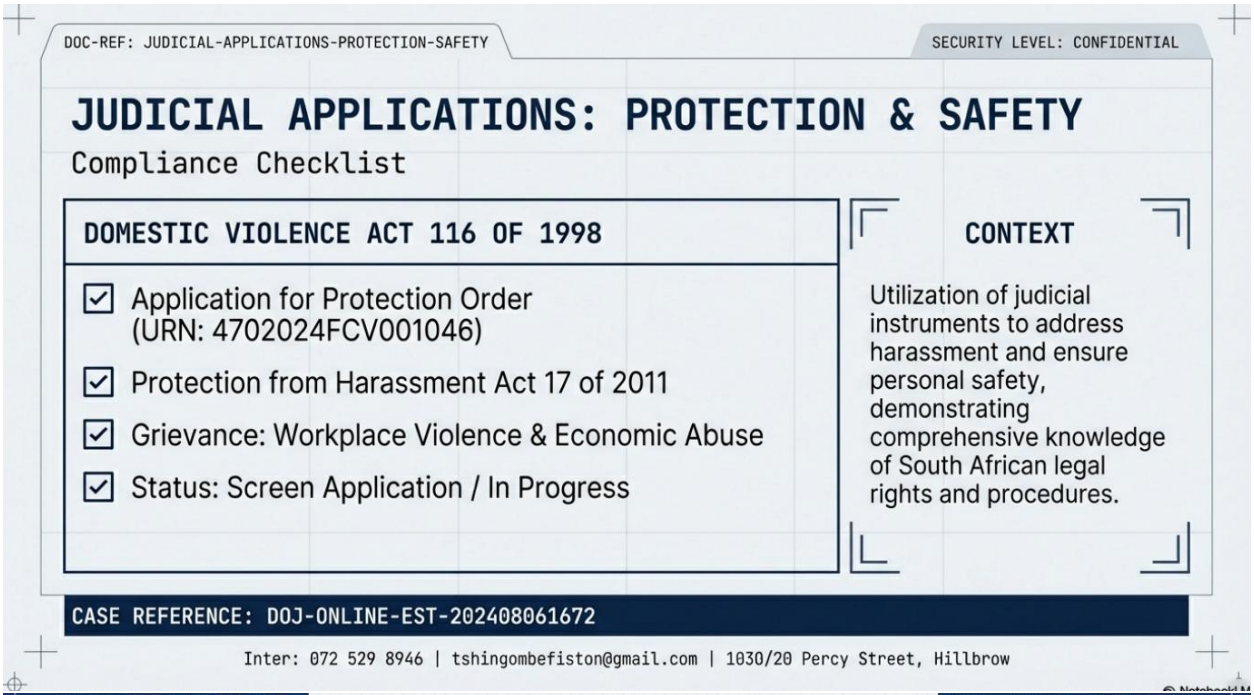
SECURITY LEVEL: CONFIDENTIAL

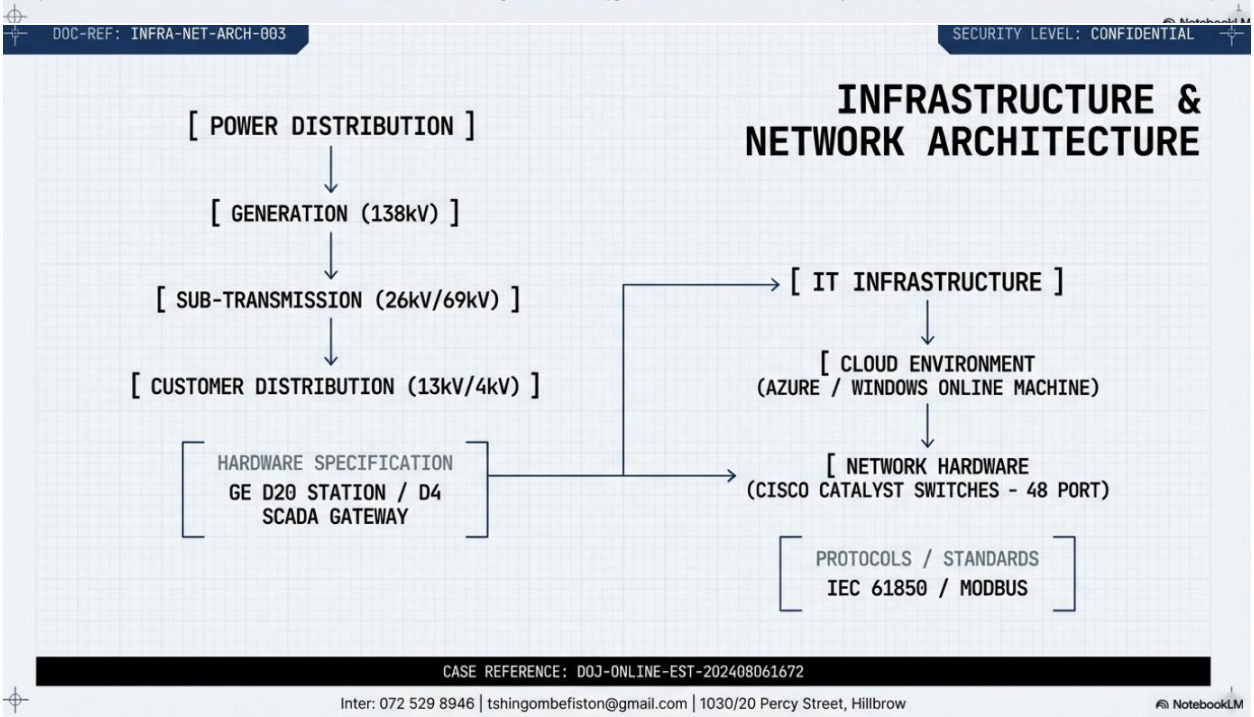
ADMINISTRATIVE ADVOCACY: EDUCATION CERTIFICATION

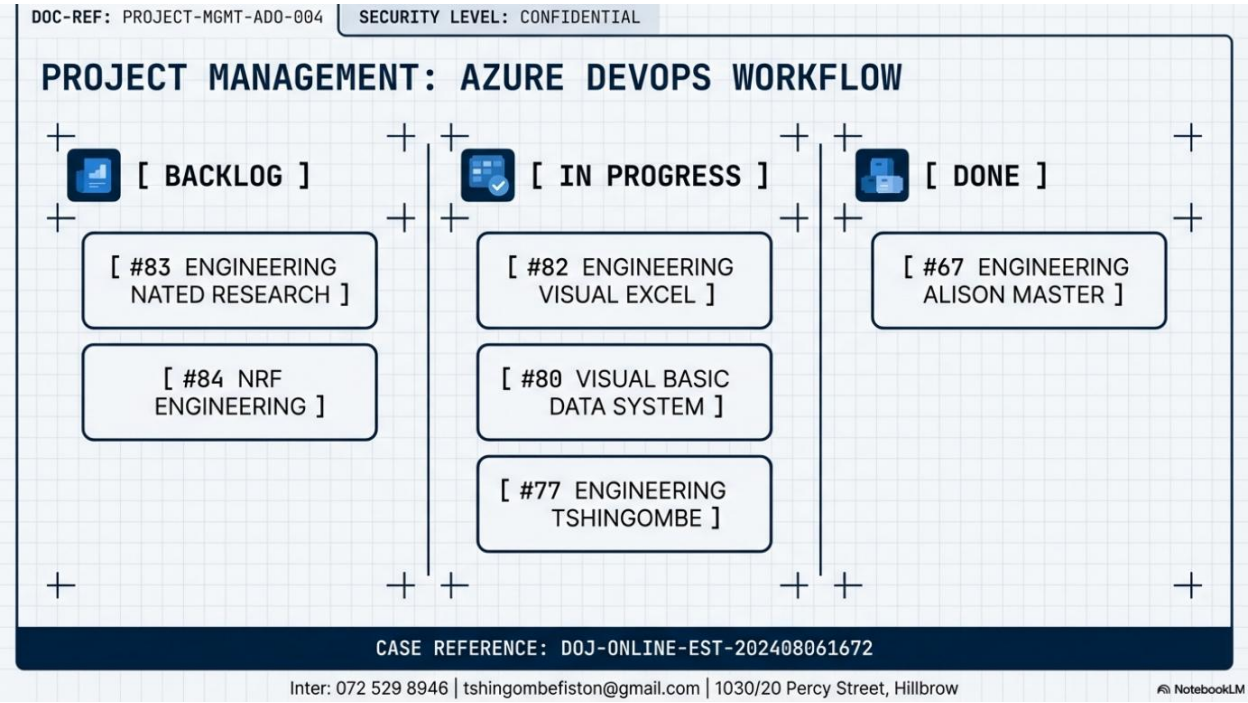


CASE REFERENCE: DOJ-ONLINE-EST-202408061672

NotebookLM


DOC-REF: JUDICIAL-APPLICATIONS-PROTECTION-SAFETY
SECURITY LEVEL: CONFIDENTIAL
JUDICIAL APPLICATIONS: PROTECTION & SAFETY
Compliance Checklist
DOMESTIC VIOLENCE ACT 116 OF 1998
Application for Protection Order (URN: 4702024FCV001046)
Protection from Harassment Act 17 of 2011
Grievance: Workplace Violence & Economic Abuse
Status: Screen Application / In Progress
CONTEXT
Utilization of judicial instruments to address harassment and ensure personal safety, demonstrating comprehensive knowledge of South African legal rights and procedures.
CASE REFERENCE: DOJ-ONLINE-EST-202408061672
Inter: 072 529 8946 | tshingombefiston@gmail.com | 1030/20 Percy Street, Hillbrow


DOC-REF: INFRA-NET-ARCH-003
SECURITY LEVEL: CONFIDENTIAL
INFRASTRUCTURE & NETWORK ARCHITECTURE
[POWER DISTRIBUTION]
[GENERATION (138kV)]
[SUB-TRANSMISSION (26kV/69kV)]
[CUSTOMER DISTRIBUTION (13kV/4kV)]
HARDWARE SPECIFICATION
GE D20 STATION / D4 SCADA GATEWAY
[IT INFRASTRUCTURE]
[CLOUD ENVIRONMENT (AZURE / WINDOWS ONLINE MACHINE)
[NETWORK HARDWARE (CISCO CATALYST SWITCHES - 48 PORT)
PROTOCOLS / STANDARDS
IEC 61850 / MODBUS
CASE REFERENCE: DOJ-ONLINE-EST-202408061672
Inter: 072 529 8946 | tshingombefiston@gmail.com | 1030/20 Percy Street, Hillbrow
NotebookLM


DOC-REF: PROJECT-MGMT-ADO-004
SECURITY LEVEL: CONFIDENTIAL
PROJECT MANAGEMENT: AZURE DEVOPS WORKFLOW
[BACKLOG]
[#83 ENGINEERING NATED RESEARCH]
[#84 NRF ENGINEERING]
[IN PROGRESS]
[#82 ENGINEERING VISUAL EXCEL]
[#80 VISUAL BASIC DATA SYSTEM]
[#77 ENGINEERING TSHINGOMBE]
[DONE]
[#67 ENGINEERING ALISON MASTER]
CASE REFERENCE: DOJ-ONLINE-EST-202408061672
Inter: 072 529 8946 | tshingombefiston@gmail.com | 1030/20 Percy Street, Hillbrow
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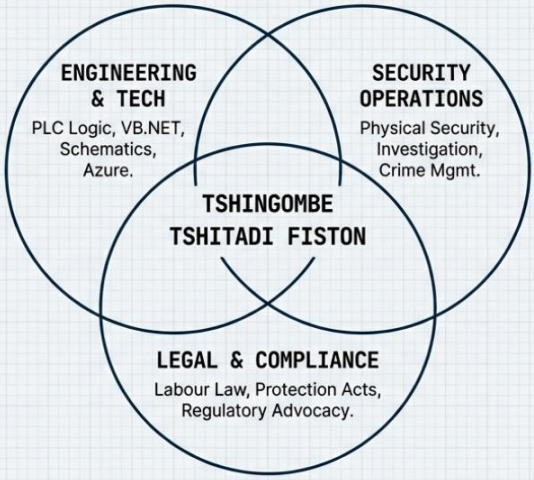
THE MULTI-DISCIPLINARY VALUE PROPOSITION



A professional capable of building secure technical systems while navigating complex regulatory and legal frameworks.

CASE REFERENCE: DOJ-ONLINE-EST-202408061672

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DOC-REF: PROJECT-NGMT-ADO-006
SECURITY LEVEL: CONFIDENTIAL

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PROFESSIONAL REFERENCES
[Nogada SA | Section One | Eaton | Schneider Electric]

LEGAL CITATIONS
[CCMA Case JR 2461/15 | Labour Appeal JA 37/19]

TECHNICAL CITATIONS
[Web-Based Crime Management System (Research Article)]

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